

# THE RAILWAY GAZETTE

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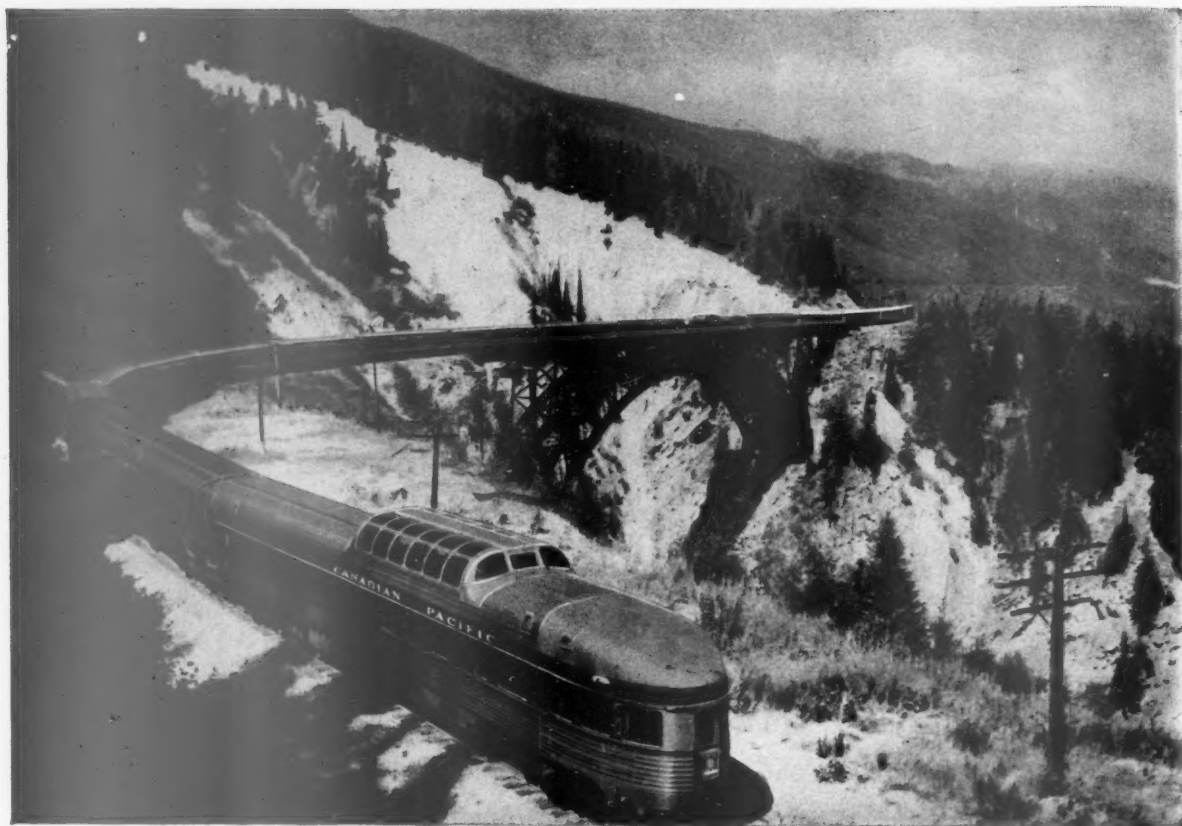
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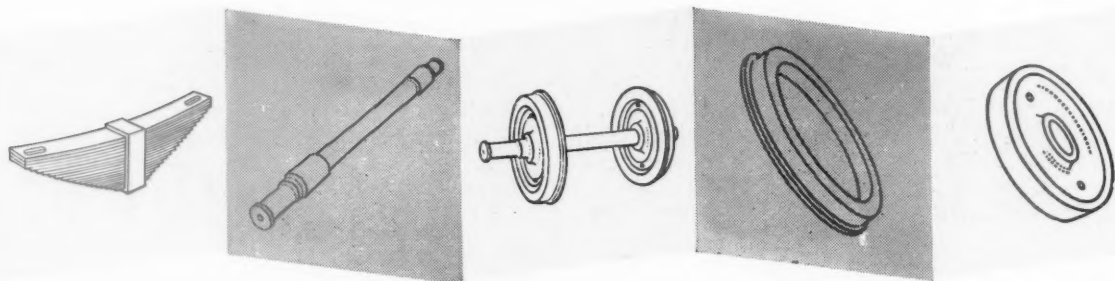
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The illustration shows "The Canadian" passing over Stony Creek Bridge, British Columbia. (Photograph by courtesy of Canadian Pacific Railways.)

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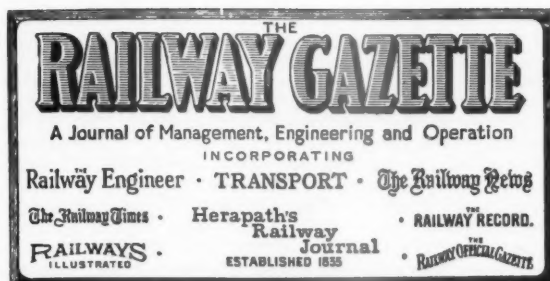
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### Commercially Sound Salaries

**T**WICE recently the Electricity Bill has occasioned discussions in Parliament and action by the Government affecting the nationalised industries which eventually, we hope, will benefit British Railways and London Transport. In April the Government amended the Bill, in the House of Commons, so as to restrict the powers of the proposed Central Electricity Generating Board to manufacture equipment; and the parallel between the nationalised transport and electrical supply undertakings, with arguments for private manufacture of equipment for both industries, was the subject of an editorial article in our April 12 issue. Last week Lord Lucas of Chilworth, in the Lords, moved a new clause providing that the terms and conditions of the appointment of all members of the Generating Board, Electricity Council, and area boards should "conform to good industrial and commercial standards." The public, he said, should "wake up to the fact that we are trying to run our national industries on charity and not on a sound, commercial basis," and he expressed the view, based on his own experience as a former Parliamentary Secretary to the Ministry of Transport (in a Labour Government) that what he termed the

non-success of the nationalised transport undertaking was the "chicken-feed" remunerations that the Governments of the day had tried to pay men responsible for an industry with a turnover of £800,000,000 a year. Lord Lucas in this instance had powerful support from the Conservative side in Lord Woolton. The fact that the Minister of Power, Lord Mills, could not agree to Lord Lucas' amendment is immaterial: an assurance has been given that in a few weeks a statement will be made on the nationalised boards. As to transport, payment to the Chairman and Members of the British Transport Commission of salaries comparable with those of men occupying analogous positions in other industries will enable the "ceiling" to be raised, at last, of senior railway officers' salaries. There is bound to be some outcry, some of it politically inspired, at any increase in the remuneration of those occupying the highest positions, at a time when all wage increases are officially discouraged as a matter of national policy—although increases in wages to workers in a number of industries involving millions of pounds are constantly occurring. The raising of the relatively few salaries of the members of boards and senior executives of nationalised undertakings is commercially justifiable. The net gain, after tax, to the recipient is small. The Government must show courage in dealing with this matter.

### Meeting Demand for Signal Equipment

**T**HE British Transport Commission's £1,200,000,000 railway modernisation plan provides for the expenditure of some £100,000,000 on signalling and safety measures. Much of this sum necessarily is for equipment which will have to be supplied by a section of the railway supply industry which, over many years, has built up by its own efforts a world wide reputation and market for its products. Naturally, the specialised units in the industry, and they are few, are anxious to do all in their power to meet the demands of the British Transport Commission, which are now being made known and which are both heavy and urgent. At the same time, these suppliers have substantial commitments in long established overseas markets which have been their main supporters in the past and whose future goodwill would be jeopardised if their current requirements—also for important railway development plans—could not be met. New Zealand, Central Africa and South Africa, to mention but three, are all in need of equipment on a large scale at the present time. The far-sighted, practical steps which the Siemens & General Electric Railway Signal Co. Ltd. is taking to cope with the position were shown to a number of British Railways' signal engineers last week and are described briefly on page 664.

### Railway Materials for China

**T**HE lifting by the British Government of strategic controls on exports to China and their alignment with existing controls on exports to the Soviet bloc mean that a great potential market now exists for railway material of all kinds, including motive power and rolling stock. The only important items of railway equipment on whose export an embargo is still imposed are believed to be turbine locomotives and special parts for them. With a population of over 600,000,000, rapidly expanding industry, and a standard-gauge railway system in course of re-equipment, China will require much railway material in the next few years—including, as stated in the editorial article in our February 22 issue, larger locomotives. To British manufacturers of motive power, carriages, wagons, permanent way and signalling equipment, and other items, the characteristics and requirements of Chinese railways—with allowances made for political and economic changes in the past 20 years—have long been familiar, for it was largely British skill and experience which built, managed, and equipped the railways from their beginning in 1876 to the outbreak of the war with Japan in 1937. The measures now taken by the British Government to free trade were promoted by British trade associations vitally concerned, including the Locomotive & Allied Manufacturers' Association.



### The American Railway Position

SOME interesting comments on the recent set-back in carryings and gross revenues of the American railways were made by Mr. Howard E. Simpson, President of the Baltimore & Ohio Railroad, when he was entertained to luncheon on Monday last by Sir John Elliot, Chairman of the London Transport Executive and the principal officers of the Executive. Mr. Simpson pointed out that although carryings were running at about 5 per cent below 1956 figures on the American railways as a whole, it should be borne in mind that last year had been a peak in railway goods movement. He attributed the cause of the lower level recently ruling to smaller steel carryings for the motorcar industry in the States, but he was by no means despondent as to the outlook. Labour costs were high, but it had been found possible to reach a three-year agreement with the principal unions which would introduce some stability into wages and enable the railways to plan ahead. On the passenger side, American lines were feeling the impact of air travel, and in his view, in many cases air rates were lower than they need be, even to retain the traffic, particularly when the time factor was taken into account.

### Overseas Railway Traffics

**C**OSTA RICA Railway receipts for April were colones 1,633,083 compared with colones 1,676,106 for April, 1956, a decrease of colones 43,023. The aggregate receipts for the 10 months July-April were colones 16,144,710 (17,072,247). The most recent information from the Victorian Railways is that railway revenue for February amounted to £A3,124,631, compared with £A3,165,960 for February, 1956. International Railways of Central America net revenue from railway operations in April was \$303,853 compared with \$219,910 in April, 1956, an increase of \$83,943. The aggregate net revenue from railway operations for the period January 1-April 30 was \$1,375,128 (\$1,365,899). Operating revenues of the Canadian National Railways for the month of April amounted to \$63,866,000. Expenses, taxes, and rents totalled \$61,466,000, making the net operating income for the month \$2,400,000. In April, 1956, operating revenues were \$63,116,000, expenses, taxes, and rents were \$60,959,000 and the net operating income was \$2,157,000.

### Demonstration Run of New G.N.R. Railcars

**M**R. A. P. REYNOLDS, Mr. G. B. Howden, and other members of the Great Northern Railway (Ireland) Board, as well as Mr. J. C. Bailie, Traffic Manager, were present on the demonstration run between Belfast and Dublin on June 4 of the new diesel railcars, described elsewhere in this issue. Mr. T. C. Courtney of C.I.E., Mr. J. A. Clarke, U.T.A., Mr. C. F. Cleaver of A.E.C. Limited and representatives of B.E.A., Aer Lingus and the Irish press and radio also attended the run, which covered the two-way distance of 225 route miles on schedule—2 hr. 15 min. each single journey. Riding was very smooth throughout the run, and the new meal service (described in the article already referred to) under the direction of Mr. C. Johnston, Hotels & Catering Manager, G.N.R., and his assistant, Miss M. Halton, was well organised and will doubtless prove a popular feature. A compartment devoted to press requirements, attended by Mr. W. A. Ryan, G.N.R., was fully equipped and decorated with posters illustrating attractions of north and south Ireland; a notable example of the excellent co-operation existing between the G.N.R., U.T.A. and the C.I.E. The "Enterprise" services were started on August 11, 1947, and augmented on May 31, 1948.

### Overcoming Difficulties in India

**T**HE remarkable progress made by the Indian railways in the face of very considerable obstacles was shown last Monday by Mr. L. T. Madnani, Railway Adviser to the High Commissioner for India, in a comprehensive and

lucid account given to the annual reunion dinner of officers of the Indian State Railways (India and Pakistan); a short account of this function is given on another page. His description of the difficulties overcome in the establishment of Chittaranjan Locomotive Works is of particular interest. A start was made on levelling the site in March, 1948. Despite severe shortages of materials and skilled men the first locomotive was completed by November 1, 1950; the target of 10 locomotives a month was achieved in January, 1955; and today Chittaranjan is turning out 14, 173-ton "W.G." broad-gauge engines a month. Mr. Madnani also gave details of operating performance and other progress made under the Five Year Plans and already recorded in this journal. His gracious expression of good wishes for the success and prosperity of the Pakistan railways added much to the pleasantness of what is always an agreeable occasion, and made the more enjoyable by the presence this year of a greater number than usual of serving railway officers from India.

### Rolling Stock Orders for Brazil

**T**HE re-equipment of Brazilian railways is proceeding rapidly. The Bank for Economic Development is investing 1,400 million cruzeiros (£7,000,000 at present free rates) in the purchase of 2,517 freight wagons for the several Federal Railways and 100 trailer coaches for the Rio de Janeiro electrified suburban lines. The trailers are for use with 50 motor coaches, to be delivered by Metropolitan-Vickers Electrical Co. Ltd. within three months; 50 others are due for delivery in 1958. All the freight wagons will be built in Brazil, orders having been apportioned between a number of Brazilian firms. The Leopoldina Railway has ordered 18 diesel-electric locomotives from the U.S.A., to be delivered this year, and has taken delivery from American builders of 50 passenger cars for its Rio suburban lines; the management has also embarked on an extensive track improvement programme. The Santos-Jundiahy's purchase of diesel-electric locomotives from the General Electric Company of U.S.A. is stated to have resulted in elimination of steam traction from that line. The same railway is reported to have placed an order for 45 diesel shunters with pneumatic tyre wheels with Le Tourneau Westinghouse.

### London-Hamburg in a Day

**T**HE "Hamburg Express," the new diesel-hydraulic train which began running last Sunday between the Hook of Holland and Hamburg in connection with the day steamer service from and to Harwich, gives overall timings between London and Hamburg of under 15 hr.—the first time that the surface journey can be made in a day. This has been made possible by the fast schedules of the four-car diesel trains, built by M.A.N., between The Hook and Hamburg Hauptbahnhof of 6 hr. 14 min. east- and 6 hr. 13 min. westbound, with very short stops over the 350 miles. At The Hook the times allowed for disembarkation and embarkation are respectively only 15 and 8 min. and special arrangements have been made for quick performance of the formalities. On the inaugural trip earlier this week we were struck by the smooth running of the train, which must be attributed partly to long stretches of continuously welded track, and the spacious and comfortable accommodation, and by the excellent catering arrangements of the German Sleeping & Dining Car Company (D.S.G.). To minimise frontier delays, the formalities are carried out by the Dutch and German authorities en route.

### Strasbourg-Mulhouse Electrification

**T**HE 50-cycle scheme of the French National Railways known as the "Electrification Nord-Est" takes the form of a triangle with its apex at Paris and its other extremities at Lille and Basle. At the eastern end the electrification was extended from Strasbourg to Mulhouse on June 2, leaving only 21 more miles to cover to Basle,



which will be reached next month. Summer passenger traffic between Britain, via Calais and Dunkirk, and Alsace, Switzerland, Austria and Italy via Strasbourg and Basle is now being electrically-hauled throughout between Valenciennes and Mulhouse, 355 miles. When connection is made with the Swiss Federal Railways at Basle next month, electrification will extend from Lille and Valenciennes to Palermo, involving connections between 50-cycle and 16½-a.c. systems at Basle and between the latter and the 3,000-V. d.c. system at the Italian frontier. At the same time a second electric diagonal across Europe will be extended through the connection from Metz to Luxembourg and the Belgian National Railways, 3,000-V. d.c. now linking up with the Netherlands Railways 1,500-V. d.c. system by the Antwerp-Roosendaal electrification. Some inter-running between different electrification systems will be practised on these routes, the S.N.C.F. having built dual-frequency locomotives for the Basle connection, while certain S.N.C.B. locomotives have been modified for running across the Dutch frontier to and from Roosendaal, and dual-voltage motor coach trains have been built for through international running between Antwerp and Rotterdam.

### First Mixed-Traffic Diesel for British Railways

**T**HE handing over last Monday at the Vulcan Foundry Works of The English Electric Co. Ltd., Newton-le-Willows, of the first line-service mixed-traffic diesel-electric locomotive built under the British Railways modernisation plan is an important step in the development of diesel traction in this country. The 1,000-h.p. Bo-Bo Type "A" (800-1,000 h.p. diesel-electric locomotives), of which a brief description is given on another page, is the first of the diesel locomotives to be delivered of those ordered in the autumn of 1955. The 20 locomotives of the series are being allocated to the London Midland Region, and at last Monday's ceremony Lord Rusholme, Member of the British Transport Commission and Chairman of the London Midland Area Board, formally accepted the first of the series from Sir George Nelson, Chairman of the English Electric group of companies.

The new series follows in general the manufacturers' standard methods of construction and equipment. These units are of double-bogie type with superstructure of the bonnet type; the driving cab is situated at one end. Controls are duplicated to enable the locomotive to be driven in either direction with equal facility. They incorporate a supercharged 1,000-b.h.p. English Electric diesel engine which has eight cylinders arranged in vee-formation to drive the main generator. Traction motors, of which there are four, are of axle-hung, nose-suspended type. Locomotive speed is controlled by the company's standard stepless speed control equipment.

The locomotives are to be based on Devons Road Motive Power Depot, Bow, in East London, believed to be the first steam motive power depot in Britain to be converted wholly for the maintenance of diesel locomotives. It is also in a strategic location for the supply of motive power to goods trains in the London Midland Region, including traffic to and from the docks.

Lord Rusholme, in accepting the locomotive, congratulated the builders on this further achievement in the company's long association with the construction of railway locomotives and traction equipment. He also spoke, as a Lancashire man, of the achievements of the county in the field of railway development, past and present. He pointed out that it was in Lancashire that the first trial installation was made of the 50-cycle alternating current system of electric traction, which had now been adopted as standard for future British Railway electrification, and that in that county and in Cheshire one of the biggest of all electrification schemes was being carried out, on the main lines from London and Birmingham through Crewe to Liverpool and Manchester.

Some indication of the range of diesel and electric motive power constructed by the English Electric group

was afforded visitors by the impressive display at the Vulcan Foundry of some of the company's recently completed units for other railway authorities, being representative of current trends of its electric and diesel-electric locomotive construction. These included the 3,300-h.p. Deltic diesel-electric locomotive, a South African Railways 2,000-h.p. 3,000-V. d.c. electric, an Indian Railways 3,120-h.p. 3,000-V. d.c. (broad-gauge) electric, a Malayan Railway 1,500-h.p. diesel-electric, and a British Railways 204-h.p. Vulcan-Drewry diesel-mechanical locomotive. This is a remarkable range of products; reference to all these has been made in this journal.

Considerable interest attaches to three items for research purposes, which were also seen last Monday by visitors to the Vulcan Foundry. Of these two were prototype diesel-powered shunting units, of identical design except for transmission details; these locomotives are of 500 h.p.; one incorporates the company's normal method diesel-electric transmission, the other a standard Krupp-type hydraulic system. The purpose of these is to evaluate, to the company's satisfaction, the relative merits of the two transmission systems with this type of locomotive. It is intended to seek the co-operation of British Railways in competitive testing under a variety of service conditions.

The results of the tests will prove of the greatest possible value, in view of the difficulty of obtaining relative performance figures of any transmission which are truly unbiased and accurately related. It is emphasised that no commercial outcome of this project is envisaged at present.

The problem of unsprung weight on motor bogies is also being looked at and the company has designed a motor bogie incorporating cardan shaft drive and conforming to the general dimensions of British Railways standard units. The two motors are each mounted on the bogie frame, thus reducing unsprung weight, and each drives an axle through a specially designed axle-mounted bevel gearbox, via cardan shafts. Other features of the bogie are the form of axle-box swing-link suspension, being supported by a helical spring between the link and frame, with damping by a Woodhead-Monroe telescopic hydraulic damper, and the extensive use of rubber bushes. Two such bogies have been completed and it is hoped that it will prove possible to test the units under actual service conditions. The performance of the bogies will be followed with interest, particularly in view of current interest in the subject of the riding and springing of multiple-unit electric trains.

These experimental projects show the extent to which the English Electric group is embarking on research in an endeavour to improve its products in the field of diesel and electric traction.

### Canadian National Railways

**O**PERATIONS of the Canadian National Railways for 1956 produced a surplus of \$26,076,951, after the payment of fixed charges, as shown in the annual report of the system signed by Mr. Donald Gordon, Chairman and President. The surplus represents a dividend of 3·1 per cent on the non-cumulative 4 per cent preferred stock held by the Government of Canada.

Operating expenses, despite economies through improved operating performance, reached a record level of \$703,303,562, 10·8 per cent more than the comparable 1955 figure. More than half of this increase was the result of higher wage rates and material prices; the balance is attributed to the expanding volume of business handled. Taxes paid by the railway in 1956 increased slightly to \$14,733,987. Rents advanced from \$3,304,365 in 1955 to \$9,758,278 in 1956, as a result of increased rentals on foreign line freight wagons. This was a direct consequence of heavier traffic and it occurred in spite of an improvement in the average utilisation of freight equipment from 882 to 954 net ton miles per serviceable car day. The report states that new accounting regulations came into effect on January 1, 1956, and the 1955 figures

have been restated to form a basis for comparison with the 1956 results. Below are compared the principal results of 1956 and 1955.

	1955	1956
Passenger train-miles .. .. .	23,559,606	24,268,051
Goods train-miles .. .. .	43,128,824	47,944,638
Freight revenue .. .. .	\$ 556,696,445	\$ 631,880,409
Passenger revenue .. .. .	54,359,241	56,397,814
Total operating revenue .. .. .	689,269,788	714,800,647
Operating expenditure .. .. .	635,322,884	703,303,562
Net operating revenue .. .. .	53,946,904	71,497,085
Taxes, rent, etc. .. .. .	17,789,546	24,705,275
Interest on public bonds .. .. .	30,653,112	26,472,551
Government interest .. .. .	651,180	3,786,009
Surplus .. .. .	10,717,089	26,076,951

In 1956, Canadian National Railways carried 99,000,000 tons of revenue freight an average distance of 423 miles. Revenue ton-miles, the product of these two factors, rose by 17.5 per cent. While nearly all types of shipments increased in volume, the biggest gains were in agricultural and mine products, notably grain, iron ore, and coal. Grain tonnage was up by 37 per cent. The principal decrease took place in motorcars and parts, due to a decline in production. The traffic pattern again showed a concentration of gains in the lower valued bulk commodities, with the result that unit revenues declined for the second year in succession. The average revenue received by the railway for hauling one ton of freight one mile fell from 1.51 cents in 1955 to 1.46 cents in 1956.

In the United States, the Interstate Commerce Commission authorised a general 6 per cent increase in freight rates, effective from March 7, 1956, and a further interim increase of 7 per cent in the east and 5 per cent in the west, effective from December 28. The increases were also applied to international traffic between the United States and Canada. The additional revenue which these rate increases produced in 1956 fell substantially short of meeting the additional cost of higher wages and other benefits and increased material prices incurred during the year.

Canadian National's five-year programme of conversion to diesel traction running from 1952 through 1956, was based on the policy of selectively applying diesel-electric power to specific runs and services. This approach, with its emphasis on intensive utilisation of the new locomotives, offered a greater return on investment in the early stages of the transition than conversion to diesel traction by geographic areas.

Prior to the five-year programme there were certain areas, such as Prince Edward Island and the Gaspé peninsula, where special conditions led to an early introduction of complete conversion to diesel traction. More recently, operating circumstances have supported other selected territorial applications. In 1956, units were acquired to complete the conversion of Newfoundland operations, the system's New England lines and the Duluth, Winnipeg & Pacific Railway. Additional locomotives scheduled for delivery in March and April of 1957 will complete the conversion of the Central Vermont Railway and the Chicago division of the Grand Trunk Western Railroad to diesel traction.

With the delivery of 324 units, more diesel locomotives were placed in service during 1956 than in any other calendar year. By the end of the year Canadian National was operating a total of 1,105 diesel units on its lines in Canada and the United States. Further steps were taken to implement the planned conversion of shops and servicing facilities, and rearrangement of work programmes, from steam to diesel maintenance.

A total of 4,685 freight cars was added to the C.N.R. fleet in 1956, including 3,653 covered, 406 covered hopper, 300 gondola, and 226 refrigerator cars. This brought the total to 23,684 acquired in the last five years to modernise and adjust the size of the fleet to present requirements.

Work was advanced on the new 158-mile line from Beattyville to the rich mineral and forest resources of the Chibougamau area in Northern Quebec. By the end of the year, tracklaying had progressed 132 miles and initial ballasting 123 miles. The line is expected to be ready for operation by July 1, 1957.

## Summer Train Services, Southern Region

FOR the first time for some years past, the summer timetables of the Southern Region, operative from June 17 next, contain some substantial improvements of the main-line services. By far the most notable acceleration is that of the service between Charing Cross, Cannon Street, Tunbridge Wells, and Hastings, with the help of the first of the new diesel-electric train sets, which will make nine through journeys each way daily, and five down and three up stopping trains between Tunbridge Wells and Hastings. The diesels will provide hourly services from Charing Cross at 20 min. past the hr. from 9.20 a.m. to 2.20 p.m. inclusive (except 12.20 p.m., which is steam worked), calling at Waterloo, Sevenoaks, Tonbridge, Tunbridge Wells, Crowhurst (with a Bexhill connection), West St. Leonards, and St. Leonards Warrior Square, and taking 96 min. to Hastings, which is about 20 min. less than with steam. In the reverse direction, midday diesel departures from Hastings will be at 11.20 a.m., 12.20, 1.20, 3.30 and 4.17 p.m., and the gaps will be filled by steam departures in such a way as to provide an hourly service in each direction throughout the day until 7.20 p.m.

Businessmen will benefit particularly by the new diesels, which will provide an amplified morning and evening service. Up in the morning there will be diesel trains from Hastings to Cannon Street at 7.8, 7.30 and 7.45 a.m. (the last-mentioned, the only train of the day to miss Tunbridge Wells, in 90 min.), and to Charing Cross at 7.15 a.m., together with the steam 8.8 a.m., with restaurant car, to Cannon Street and the 8.25 a.m. to Charing Cross. Down in the evening there will be the steam 5.5 p.m., with restaurant car, from Cannon Street, and diesels at 5.14, 5.39, and 6.5 p.m. (the last in 90 min.) from the same station and 5.25 p.m. from Charing Cross. In all, the 25 daily trains of the present timetable, averaging 119 min. in time between the London terminal and Hastings, will be replaced by 32 trains averaging 107 min., or 12 min. less. The only deficiency of the new timetable is that the last train of the day from Charing Cross to Hastings by this route is as early as 7.20 p.m. A useful feature of the folder advertising the new service is that all the diesel trains are distinctively indicated, and also the fact that Bexhill passengers must change at Crowhurst—a practice that might well be followed in the public timetable sheets and books.

To fit the new Hastings service in, alterations are having to be made in the times of the expresses from Charing Cross to Folkestone, Dover, and Deal. These will leave Charing Cross at 8 instead of 15 min. past the hr., i.e. at 9.8 and 11.8 a.m., 1.8, 7.8, and 9.8 p.m., the exceptions being the 3.10 p.m. and the 4.10 p.m. "Man of Kent." The 5.40 from Cannon Street to Dover will start at 5.47 p.m. and the 6.18 at 6.21 p.m. There will be adjustments in the up direction also and some slight deceleration, the fastest time from Charing Cross to Folkestone Central being increased from 80 to 82 min. and in the opposite direction from 80 to 84 min.

In the Central Division the London-Brighton service is to be augmented by new fast hourly trains to and from London Bridge, calling at New Cross Gate, Norwood Junction, East Croydon, Horley, Three Bridges, and Haywards Heath only; they will leave London Bridge on the hr. from 9 a.m. to 3 p.m., followed by the normal evening service by 4 p.m. onwards, and will return from Brighton at 38 min. past the hr. from 10.38 a.m. to 2.38 p.m., also at 4.38, 5.38, 7.38, and 8.38 p.m., taking 72 min. down and 79 min. up. The semi-fasts from Victoria to Brighton at 28 min. past the hr. and back at 8 min. past the hr. will cease to call at Gatwick Airport.

On the Western Division the most outstanding feature of the summer improvements is the restoration, for the first time since 1939, of 2-hr. runs between Waterloo and Bournemouth Central, at 8.20 a.m., 10.30 a.m., and 6.30 p.m. down, and at 12.40, 2.40, 6.40 and 7.40 p.m. up, the last-mentioned an entirely new train, leaving Bournemouth West at 7.28 p.m. The 10.30 a.m. will give a 3-hr. service from Waterloo to Weymouth. With present-day loads and the intermediate stop at Southampton (at which

water is often taken by the locomotives), the new 2-hr. times will require harder locomotive work than the pre-war "Bournemouth Limited" non-stop timings of 116 min. down and 118 min. up. The 2-hr. trains will cover the 79.2 miles from Waterloo to Southampton Central in 81 min. There will be no change in the schedule of the "Bournemouth Belle" Pullman (at one time the fastest train on the service) or of the "Royal Wessex."

On the West of England main line the 4.30 p.m. from Exeter Central to Waterloo will omit its Woking stop, and with acceleration throughout will reach Waterloo at 8.6 p.m., 19 min. earlier. This is a precedent which might well be followed by other West of England expresses; it is a surprising fact that today one train only in each direction daily runs non-stop between Waterloo and Salisbury, and one each way with one stop, all the remainder having to make two intermediate stops or more. By comparison, on summer Saturdays, when the West of England service is vastly expanded, there are 22 non-stop Waterloo-Salisbury schedules.

### British Transport Commission Traffic Receipts

NO strict comparison between Period 5, the four weeks ended May 19, and the corresponding period of 1956, is possible, because of the incidence of the Easter holiday, the latter part of which this year fell in the four weeks under consideration. As regards British Railways passenger traffic, the small increase, compared with last year, is what might have been expected, in view of the abolition of fuel oil rationing during the period. Because rationing was in force from last autumn until well into Period 5, the increase of 15.1 per cent over 1956 in aggregate passenger receipts of British Railways for the first 20 weeks of this year is in accordance with the trend already apparent. It is now clear that road competition for main-line passenger traffic is as acute as ever.

The effects of fuel oil rationing on London Transport traffic are harder to assess, and it is not possible to comment on the increases over 1956, for Period 5, of 2.8 and 2.4 per cent, respectively, for rail and road traffic. The aggregate figures for the 20 weeks of 8.2 and 10.5 show, however, that the private motorist is taking full advantage of increased petrol supplies.

	Four weeks to May 19		Incr. or decr.	Aggregate for 20 weeks		Incr. or decr.
	1957	1956		1957	1956	
	£000	£000	£000	£000	£000	£000
<b>Passengers—</b>						
British Railways ..	9,813	9,322	+ 491	47,932	41,633	+ 6,299
London Transport:						
Railways ..	1,744	1,695	+ 49	9,082	8,393	+ 689
Road Services ..	4,549	4,439	+ 110	23,059	20,856	+ 2,203
Provincial & Scottish buses ..	4,405	4,185	+ 220	21,579	19,208	+ 2,371
Ships ..	429	339	+ 90	1,403	1,335	+ 68
<b>Total Passengers ..</b>	<b>20,940</b>	<b>19,980</b>	<b>+ 960</b>	<b>103,055</b>	<b>91,425</b>	<b>+ 11,630</b>
<b>Freight, Parcels and Mails—</b>						
British Railways:						
Merchandise & live- stock ..	8,139	8,391	- 252	44,424	40,570	+ 3,854
Minerals ..	4,111	4,149	- 38	21,313	20,243	+ 1,070
Coal & coke ..	8,956	10,366	- 1,410	50,801	49,815	+ 986
Parcels, etc., by passenger train ..	3,772	3,774	- 2	18,859	17,420	+ 1,439
Collection and deli- very, etc. ..	1,032	1,038	- 6	5,344	4,879	+ 465
<b>Total freight, British   Railways ..</b>	<b>26,010</b>	<b>27,718</b>	<b>- 1,708</b>	<b>140,741</b>	<b>132,927</b>	<b>+ 7,814</b>
<b>Others* ..</b>	<b>4,184</b>	<b>4,521</b>	<b>- 337</b>	<b>20,887</b>	<b>21,495</b>	<b>- 608</b>
<b>Total freight, parcels   and mails ..</b>	<b>30,194</b>	<b>32,239</b>	<b>- 2,045</b>	<b>161,628</b>	<b>154,422</b>	<b>+ 7,206</b>
<b>Total ..</b>	<b>51,134</b>	<b>52,219</b>	<b>- 1,085</b>	<b>264,683</b>	<b>245,847</b>	<b>+ 18,836</b>

\* Inland waterways freight, road haulage, and ships

The picture presented by British Railways freight traffic receipts is not encouraging. Even after allowance has

been made for part of the Easter holiday, the decreases, compared with last year, of 13.4 per cent in respect of coal and coke and of 3 per cent in respect of merchandise and livestock receipts, point to a serious falling off in these traffics—a trend apparent even during fuel oil rationing, with the resultant temporary increases.

Provincial and Scottish bus receipts were 5.2 per cent up on last year's figures, much the same as for Period 4. Heavy Easter traffic seems to account for the increase over 1956 of 26.5 per cent in ship's passenger traffic for Period 5; for the aggregate of 20 weeks since the New Year the corresponding increase is 5 per cent, which seems to bear out this explanation.

### BRITISH TRANSPORT COMMISSION TRAFFIC RECEIPTS. PERCENTAGE VARIATION 1957 COMPARED WITH 1956

	Four weeks to May 19	Twenty weeks to May 19
<b>British Railways—</b>		
Passengers ..	+ 5.2	+ 15.1
Parcels ..	—	+ 8.2
Merchandise & livestock ..	- 3.0	+ 9.4
Minerals ..	- 0.9	+ 5.2
Coal & coke ..	- 13.4	+ 1.9
C. & D. services ..	- 0.5	+ 9.5
<b>Total ..</b>	<b>- 3.2</b>	<b>+ 8.0</b>
<b>Ships (passengers) ..</b>	<b>+ 26.5</b>	<b>+ 5.0</b>
<b>British Road Services, Inland Waterways and   Ships (cargo) ..</b>	<b>- 7.4</b>	<b>- 2.8</b>
<b>Road Passenger Transport, Provincial &amp; Scottish</b>	<b>+ 5.2</b>	<b>+ 12.3</b>
<b>London Transport—</b>		
Railways ..	+ 2.8	+ 8.2
Road services ..	+ 2.4	+ 10.5
<b>Total ..</b>	<b>+ 2.5</b>	<b>+ 9.8</b>
<b>Aggregate ..</b>	<b>- 2.0</b>	<b>+ 7.6</b>

### U.S.A. Railway Reports

(By a correspondent)

IN the month of March over 100 Class 1 railways in the United States circulated reports to their stockholders on 1956 financial and operating results. Some "highlights" extracted from four of these reports, picked out at random, will show that railroading in America is full of enterprise under private ownership, though the aims and characteristics of individual railways differ widely.

"Main line thru the Rockies" is the slogan of the Denver & Rio Grande Western, which operates 2,155 miles in Colorado and Utah. During 1956—its best year ever—diesel motive power replaced steam locomotives entirely. The front cover of the annual report bears a coloured picture of a 6,000-h.p. diesel, formed of four units, hauling a long freight train through a beautiful canyon in Utah. Since 1947 the arrival of the diesel has helped to increase the gross trainload by 61 per cent to 3,384 tons, while raising freight train speed by 2 m.p.h. to 18.8. These factors combined to increase the output of gross ton-miles per train-hr. by 80 per cent.

Last year the Rio Grande carried over 20,000,000 tons of revenue freight for an average distance of 291 miles. Nearly 500,000 passengers made an average journey of 258 miles, the popular "California Zephyr" taking 6 per cent more revenue than in 1955. The railway is proud of the gold, silver, and black livery of its passenger trains and is extending the colour scheme to freight trains, as a worthwhile advertisement in a competitive area. Two pages of the report illustrate the methods of preparing and laying "jointless rail for smooth rolling" and a third depicts progress in atomic research. Above all, the Rio Grande achieved an operating ratio of 63.1 per cent on a hard road which includes the six-mile Moffat Tunnel under James Peak in Colorado.

### BALTIMORE & OHIO

The 130th report of the Baltimore & Ohio Railroad Company is less flamboyant, as befits a great freight road with a fleet of 92,500 wagons. Last year it carried 124,444,000 tons an average distance of nearly 250 miles. Revenue ton-miles were 31,070 million representing more



work done on 6,000 miles of road than British Railways performed on 19,000. An upsurge in coal output raised carryings by 14 per cent over 1955 to 55,295,000 tons, equivalent to 11 per cent of all bituminous coal won in the States. For all traffics the net train load of 1,561 tons and 19,376 net ton miles reeled off in a train hour were all-time records.

The B. & O. had in service 1,010 diesel units and 437 steam locomotives, whose cost of upkeep was excessive. An operating ratio of 80.6 per cent helped to lift net income to \$30 million, the highest peacetime figure since 1929. Over the past 10 years passenger business was halved in volume and conducted at a loss. Last year the number of passengers was 3,517,000 and the average journey covered 171 miles. Freight revenue was 22 times the amount of passenger takings and represented almost \$21 per freight train mile: passenger train earnings from all sources, including restaurant cars, were \$3.4 per train mile. Each year a freight surplus wipes out a passenger deficit.

#### NEW HAVEN

The New York, New Haven & Hartford Railroad is not a typical American line; rather, it resembles the East Anglian section of British Railways. Operating 1,744 miles in freight service and 993 in passenger service, it carried last year 23,809,800 tons of freight and 45,703,200 passengers, or 10 per cent of all U.S.A. railway passengers. That is an extraordinary feat for a railway which ranks 30th in size among U.S.A. lines. The New Haven has 127 miles of electrified line running north by east from New York and its main lines throw off branches to seaside resorts and country towns. Some busy industries are located along its tracks. Above all, Cambridge, Massachusetts, is the seat of Harvard University, named after a 17th century benefactor from Emmanuel College; its rival, Yale, is at New Haven, where the railway has general offices.

Last year, the New Haven worked 9,225,500 passenger train-miles, compared with 3,215,000 freight train-miles. An average fare of \$1.13 was too low, but the Interstate Commerce Commission has approved increased charges which should improve financial results this year. Methods of management were overhauled when Mr. George Alpert became President in January, 1956. He instituted a vigorous economy campaign. Finding about 60 consultants employed, he dismissed them all and transferred their duties to experienced railwaymen, with a saving throughout the system. At the same time he improved services all along the line by installing 80 diesels at a cost of \$15,000,000. His policy earned a modest profit last year, put fresh heart into the staff and pleased the railway's customers.

#### SANTA FE

Among the 20 main-line railways working in and out of Chicago the longest is the Santa Fe, stretching for 13,129 route miles across 12 States to Galveston on the Gulf of Mexico and San Francisco in the far West. Its 1956 report is in a neat format, having on its cover a view of one of the "Hi-level" cars with which "El Capitan," running between Chicago and Los Angeles, was equipped last year. The novel design may have attracted some business, but the Santa Fe carried merely 3,192,470 passengers last year, 213,000 fewer than in 1955. Passenger miles were 2 per cent up, because the average journey was 620 miles, 50 more than in 1955; the average fare was nearly \$14 against \$12.3 and total passenger revenue of \$44.6 million was 7 per cent higher. Mail and parcels revenue amounted to \$34.4 million, but passenger-train revenue per train-mile was no more than \$3.77, against \$16.6 for freight revenue per train mile.

Since 1947, freight revenue increased by 25 per cent to \$491 million and justified a 1956 programme of betterments costing \$102 million. Owing to shortage of steel and other materials, the Santa Fe spent only \$80 million, of which \$57 million went on 80 diesel units, 2,480 wagons and other equipment. The balance was spent mainly on

two long branch lines to serve new industries, on installing 186 miles of centralised traffic control and on laying down nearly 300 miles of heavy rail, for the most part continuously welded. This year's programme includes a new retarder-operated marshalling yard, with electronic controls, at Chicago, which should save a good deal of the time wagons spend at the terminal. The Santa Fe moves freight trains between terminals at 23 miles an hour and passenger trains at 49; its policy is to purchase new and faster diesel locomotives, as they become available, to improve mobility further. With a net railway operating income of \$65.3 million and an operating ratio of 76 per cent, the Santa Fe can provide the most modern and efficient equipment.

## Letters to the Editor

(The Editor is not responsible for opinions of correspondents)

### Third Class Seats in Corridor Trains

May 31

SIR,—As was clear five years ago, when new passenger stock appeared seating three a side in side-corridor compartments, British Railways cannot afford to give third class passengers the luxury of only six seats to a compartment; it is, therefore, surprising that these folding arm rests should have been fitted in the new British Railways stock. They complicate the seat reservation scheme and cause a great deal of ill feeling between passengers and staff and between the passengers themselves.

What is required is a more even distribution of comfort between the corner and the inside seats and to this end I suggest the introduction of fixed centre arms and head rests in all third class corridor stock. This would provide eight definite seats per compartment and would afford all the occupants the opportunity of rest or sleep with some degree of comfort.

Yours faithfully,

P. M. BROOKE-HITCHING

2, Kensington Palace Gardens, W.8

### The Fuel Oil Tax

June 3

SIR,—We are glad to note from Mr. Brebner's further letter (your May 24 issue) that he did not "mean to imply" that the tax on derv should be raised from 2s. 6d. to 3s. But if this is so, the national associations, on behalf of whom our letter, published in your May 10 issue, was written, may be forgiven for wondering what possible object he could have had in making the point at all. And, anyhow, why go out of his way to try to damage our case for abolition?

On the question of taxing diesel fuel used by the railways, Mr. Brebner should read our letter again. What we actually said was:—

"There is no desire to see the railways saddled with a burden of special taxation such as road transport now has to carry. Parity should be achieved, not by taxing rail as well as road, but by giving freedom from taxation to both."

If Mr. Brebner is really "unbiased" against the roads, it is difficult to understand why he is not wholeheartedly on our side.

Yours faithfully,

R. E. HYSLOP

General Secretary,

The Municipal Passenger Transport Association (Inc.)

F. A. WALKER

National Secretary,

The Passenger Vehicle Operators' Association Limited

R. L. HOWLETT

Secretary,

The Public Transport Association Inc.

R. MORTON MITCHELL

Chief Executive Officer,

The Road Haulage Association Limited

THOS. GRAY

Hon. Secretary,

The Scottish Road Passenger Transport Association

## THE SCRAP HEAP

### Last of the Old Woodhead Tunnel

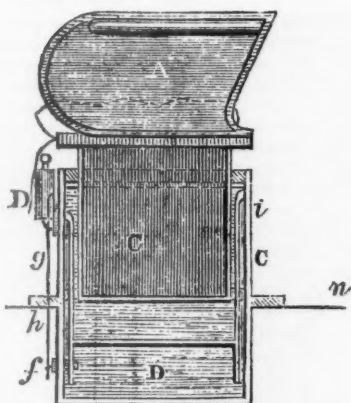
The old Woodhead Tunnel, 3 miles 22 yd. long, completed for the Sheffield, Ashton-under-Lyne & Manchester Railway, and officially opened on December 22, 1845, is now to be sealed. The tunnel has become redundant since the construction of the new one in connection with the Manchester-Sheffield-Wath overhead electrification scheme.

At present the track running through the tunnel is being removed after which the bricking up will commence. To avoid detracting from the architectural features of each entrance the walls will be built in the shadows, and each will have an inspection door.

### Running Shed Design for Church

There are many churches in the French [architectural] survey where the challenge of a particular programme has created new and stimulating architectural solutions . . . churches which suggest that the architect brought to his work a prior determination to build, for example, a round church, or a triangular church, or that he has tried to impose upon his church a form invented for a different and alien function. Take the case of Gillet's church at Notre Dame de Royan, for example, where the architect employs a type of construction evolved by the engineer Bernard Lafaille for the locomotive sheds of the French National Railways. So far as one can judge from a model, the church

Fig. 6, Section.



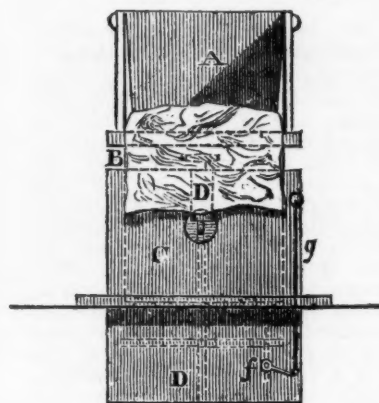
Contemporary print showing details of a "hydrostatic" railway carriage seat of 1837, designed to counteract rough riding

seems likely to be aesthetically very exciting.—*The Rev. Peter Hammond in a B.B.C. broadcast.*

### "Hydrostatic" Railway Carriage Seat

A correspondent has sent us particulars of a "hydrostatic" seat reported to have been devised in 1837 to counteract the uncomfortable riding of railway coaches. The invention is depicted in the contemporary engraving reproduced above. The base of the seat (C) was formed with a double bottom, dividing it into two parts: the upper, in which

Fig. 7, Front View.



the seat floated; and the lower, which was a receptacle for the water (B). The top of the outer case and the bottom of the inner floating box were bound round with hemp or other packing to prevent the sides of the cases from touching and to act as guides.

The seat was raised by pumping up the water from the lower or waste box by means of the "syringe" (D), the seat being then lowered by the cock (f) being opened by the wire or string (g) and allowing the water to flow out into the waste box by the waste pipe (i). The outer case was flanged and set into the carriage floor (n).

Loss of water was the principal cause of the failure of this invention.

### Work Study

(See our May 17 issue)

At Watford (Herts), we understand,  
A course of education  
Is being undertaken for  
The good of transportation;  
For, by and large, the experts think  
We shall get on much faster  
If we sit down and study work  
Under some shrewd past-master.  
I had a word with Porter Bill,  
Who nattered with his neighbour,  
A plumber, with sound views upon  
The dignity of labour.  
They both agreed that studying work  
Provides no cause for tears—  
In fact, they've both been doing it,  
At intervals, for years.  
The difficulty, they maintain,  
With work (they both eschew it)  
Is finding someone gullible  
Enough to go and do it.  
It all depends, to some extent,  
Upon the different schools,  
Whether one gets on with the job  
Or goes back for the tools.  
With all and sundry studying hard  
For their M.Sc (Toil).  
It looks as though our trains will soon  
Be run on midnight oil!

A. B.

### Up Country in New South Wales



Kenny Hill Halt, New South Wales Government Railways. Some readers may discern a certain similarity to a G.W.R. halt, though without the neatness of the British structure

## OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

### INDIA

#### Introduction of Decimal Coinage

To help railway users to deal with the new—and hitherto unfamiliar—decimal coinage introduced in the Republic on April 1, the Eastern Railway issued an eight-page booklet. This shows the designs of the new coins and explains the conversion rates laid down by the Government; a conversion table is supplied. Details also are given of the arrangements by which railway charges may be paid partly in the new and partly in the old coinage. No alteration, it is pointed out, took place in passenger or freight rates on April 1; for the time being, therefore, charges continue to be expressed in rupees, annas, and pies.

#### Improved Bombay Suburban Service

Delivery of multiple-unit stock from Italy is expected to make possible a more frequent service on the Central Railway electrified lines from and to Victoria Terminus.

#### Lines Transferred to Western Railway

Three sections of line have been transferred from the Central to the Western Railway; these are: Bhopal to Ujjain; Bina to Kotah; and Ujjain to Agar.

### NEW ZEALAND

#### Refrigerated Railway Wagons

The sum of £1,532,000 for the purchase of a large quantity of new refrigerated rolling stock has been allocated by the New Zealand Cabinet.

The money is to buy 200 wagons to add to the present railway refrigerated stock of 1,700 wagons throughout New Zealand. It is expected that the wagons will cost an average of £7,660 each. The wagon frames will be built in the United Kingdom and in Australia, 100 being purchased from each country. Delivery from Australia will start next January at the rate of 12 wagons a month and delivery from Britain in 12 months from now at the same rate. Bogies will be manufactured in New Zealand. Of the 200 sets required, 47 have already been built. The wagons will be used for carrying meat from the freezing plants to ships.

### VICTORIA

#### Dismantling of Red Hill Line

The Victorian Railways have called for tenders for the dismantling of the branch line from Bittern to Red Hill, a distance of 10 miles. The line is a branch from the main Melbourne-Stony Point line on the Mornington Peninsula and traverses a sparsely populated rural area. In 1921, when it was built, doubts existed in some quarters as to its ultimate success. It was closed to all traffic a few years ago. The successful tenderer will be required to deposit the recovered material in the railway yards at Bittern.

#### Sea Lake to Melbourne Service

By speeding up the diesel-electric railcar service between Sea Lake and Bendigo on Mondays and Fridays, passengers are now able to travel to Melbourne and return the same day.

Special day return fares between Sea Lake and Bendigo are an inducement. From March 11 last, the 6.55 a.m. railcar connecting at Bendigo with the fast train to Melbourne leaves Sea Lake at 7.5 a.m.—10 min. later—and arrives at Bendigo at the normal time of 11.25 a.m. On the return trip it leaves Bendigo at noon on Tuesdays, Wednesdays and Saturdays, and at 4.45 p.m. on Mondays and Fridays.

### ISRAEL

#### Passenger Services

Two passenger trains are running each way daily over the newly completed 47-mile branch between Na'an and Beersheba. There are now 10 passenger trains each way on weekdays between Tel Aviv Central and Haifa.

### ARGENTINA

#### Labour Unrest

The latter part of April was noted for a widespread partial railway strike in Northern Argentina, especially on the General Belgrano Railway, in particular the Taffi Viejo shops of that line. The men alleged non-compliance with the recent wage agreement, but the Government announced that this would be fully honoured and that retroactive payments would be made in May. It further denounced the strike as being political in nature. Delegates of the railwaymen's unions travelled to Tucumán and made official speeches to mass meetings of the men, after which the strike began to peter out of its own accord until traffic was almost normal.

## Diesel Passenger Working in New Zealand



Two English Electric 750-h.p. diesel-electric locomotives with the Invercargill to Christchurch "South Island Limited" at Dunedin

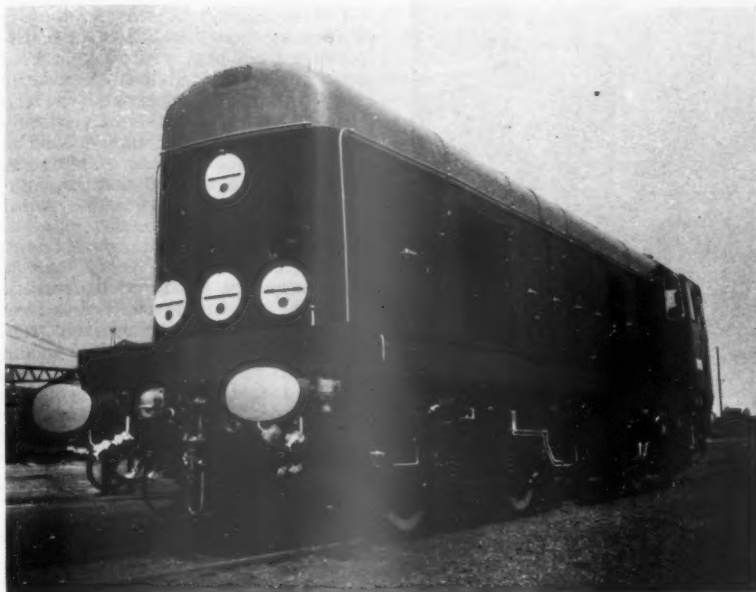


Vulcan railcar entering Dunedin from Cromwell; Hillside railway workshops in background



# First Type "A" Diesel-Electric Locomotive for British Railways

*Vulcan-built 1,000-b.h.p., Bo-Bo mixed-traffic allocated to London Midland Region*



1,000-b.h.p. type "A" mixed traffic diesel-electric locomotive

Railways. In addition, they can be coupled in multiple unit with many types "A," "B," and "C" locomotives now under construction by other manufacturers.

The locomotive superstructure is of the bonnet type with a driving cab at one end.

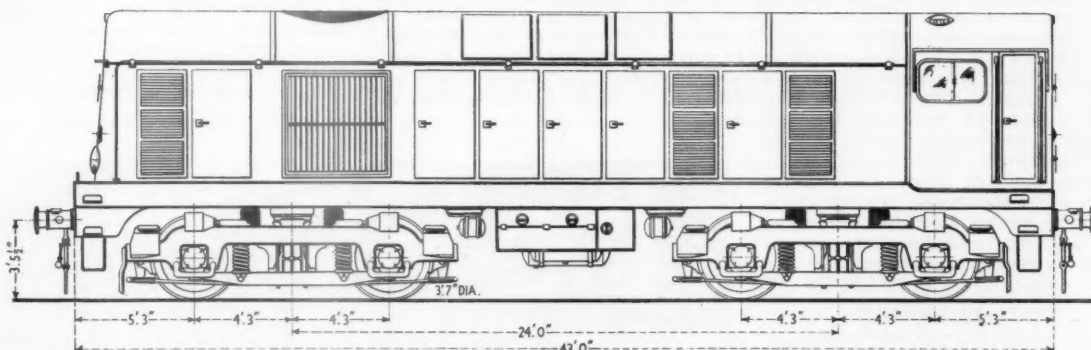
Principal data of the unit, general appearance of which may be seen in the accompanying diagrams and illustrations, is as follow:—

Length over buffer beams	43 ft.
Overall width	8 ft. 9 in.
Overall height	12 ft. 7½ in.
Maximum tractive effort	42,000 lb.
Continuous rated tractive effort	19,500 lb.
Maximum service speed	75 m.p.h.
Minimum curve negotiable	34 ch.
Maximum axle load	18 tons
Weight in working order	72 tons

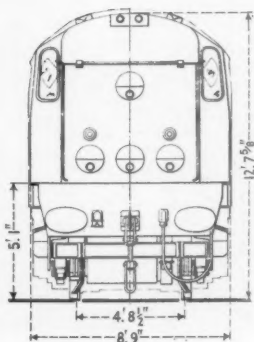
Power is supplied by an eight-cylinder V-bank English Electric 8SVT MkII engine rated at 1,000 b.h.p. at 850 r.p.m. supercharged by two Napier exhaust-gas turbochargers. The main generator is bolted up to the engine, and with an overhung auxiliary generator, these form a compact power unit. The latter is supported on resilient bearers to accommodate normal flexing of the locomotive underframe and assist in the removal of the power unit.

Engine lubricating oil and water are cooled by a double-bank radiator, one radiator panel being mounted on each

THE first of the line-service Type "A" 1,000-h.p. mixed-traffic diesel-electric locomotives, orders for which and for other types were placed, as detailed in our November 25, 1955, issue, as part of the British Railways moderni-



Side elevation of English Electric-Vulcan-built 72-ton unit



Front elevation

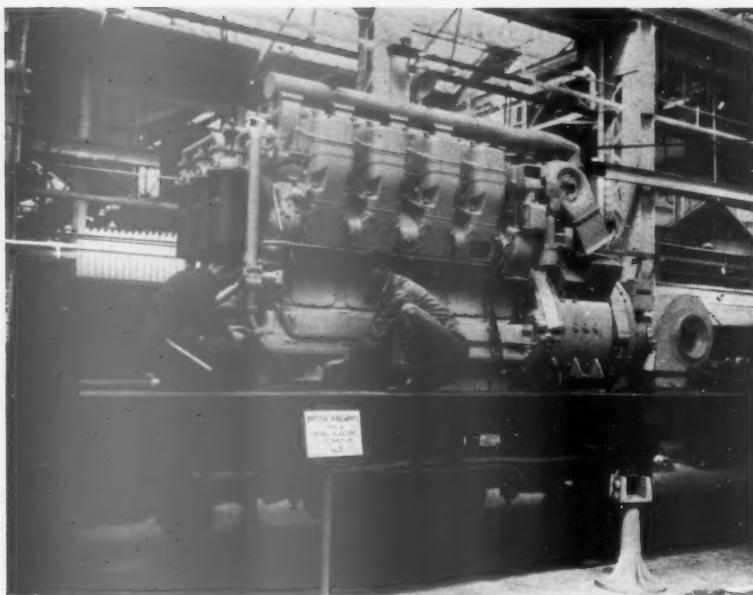
sation programme has now been completed. Built by the English Electric Co. Ltd. in conjunction with its associates the Vulcan Foundry Limited, the unit was handed over this week, as reported elsewhere in this issue.

These locomotives, 20 of which have been ordered, are intended for operation on the London Midland Region. They are designed primarily for freight transfer duty, although they may be used for passenger service providing that train heating, for which the unit is not equipped, is not required. They can be coupled together in multiple unit either with similar locomotives or with the Type "B" and "C" locomotives which the company are building for British

side of, and set back from the front of, the superstructure. The roof-mounted radiator fan is driven mechanically from the engine crankshaft extension. The radiators are provided with shutters, manually controlled from the cab, to give protection against frost; the temperature of the cooling water is thermostatically controlled.

## Electrical Units

The main generator is of self-ventilated, single bearing design, with a continuous rating of 1,070 A. at 600 V. d.c. In addition to a separately excited winding which is used for normal running, it is provided with a series winding which is used when the



1,000-b.h.p. power unit being fitted into underframe of locomotive

generator is connected across the battery for engine starting. The auxiliary generator maintains a constant 110-V. d.c. output by means of a carbon pile voltage regulator, providing the low tension supply for battery charging, control gear and the auxiliary machines.

These are a Reavell R 8 x 8 exhauster, a Westinghouse DVC3 compressor and two centrifugal traction motor blowers. Power is transmitted by four axle-hung nose-suspended series-wound traction motors with a rating of 600 A. at 300 V. nominal, which are connected in two parallel groups of two in series. Provision is made for weakening the field strength of the traction motors by field divert resistances. Each pair of motors is force-ventilated from the adjacent blower in the locomotive superstructure, the air being led from the blower by ducts and flexible bellows connections to the air inlet at the commutator end of the motor.

#### Wheel slip protection

In the event of wheel slip, protection circuits operate an indicator lamp at the driving position and automatically reduce the tractive effort. Additional warning lights indicate engine shut-down, or other faults such as high-water temperature or a failed traction motor blower. In the event of low lubricating oil pressure or low cooling water level, the diesel engine is automatically shut down.

Two master controllers, one at each driving position, on either side of the cab are fitted. The control circuits are energised by electro-pneumatic and electro-magnetic contactors and relays, the loading on the engine being automatically adjusted by means of the manufacturers' method of stepless control.

The locomotive underframe which incorporates riveted and welded con-

struction consists of four channel longitudinals divided into two pairs, each pair being joined at the top and bottom by plating thereby forming two box sections. The latter are cross-connected at intervals by welded transoms. The centre part of the box sections is sealed off to form two fuel tanks of 400 gal. capacity, which are connected together by two of the transom members which act as balance pipes. Drag boxes are welded at both ends of the underframe to carry the standard British Railways screw coupling type drawgear, although provision is made for fitting buck-eye couplers.

Two battery boxes are underslung from the centre of the underframe. They are well ventilated, and ready access to the batteries for topping up or removal is possible through drop-down hinged doors.

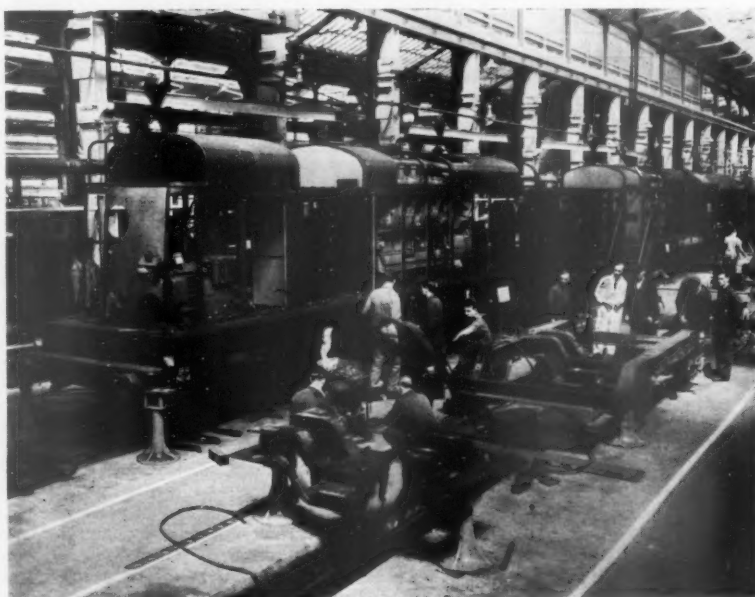
The superstructure side framing is prefabricated and attached to the underframe by welding. Removable roof sections are provided over the control cubicle, the power unit, and the end compartment. The cab is resiliently mounted on the underframe in order to reduce the noise level to a minimum, and panels are sprayed with an insulating material of the asbestos type for the same purpose.

#### Bogies

Bogies are of a fabricated construction. The sole-bars are welded to form a box section, and the fabricated transom and headstocks are riveted to the solebars to form a robust bogie frame. The load from the superstructure is transmitted to the bogie frames by a single bolster riding in each bogie. The bolster is carried on semi-elliptic laminated springs, which are in turn carried on a spring plank, supported from the bogie frame by inclined swing links. Springing between the bogie frame and the road wheels is provided by nests of coil springs which are located between the underside of the bogie frame and the top side of the equaliser beams. In turn, the forged steel equaliser beams are underslung from the roller bearing axleboxes. Forged steel hornclips are fitted on each side of the axlebox guides.

Manganese steel liners are fitted on the axlebox guides and on the axleboxes. Similar liners are fitted on the traction faces of the bolster and bogie transom, whilst the lateral swing of the

(Continued on page 654)



Two type "A" locomotives under construction in Vulcan Foundry Works

## New Diesel Railcars for G.N.R. Board

*First train resulting from new stock completed at Dundalk for Dublin—Belfast "Enterprise" service*

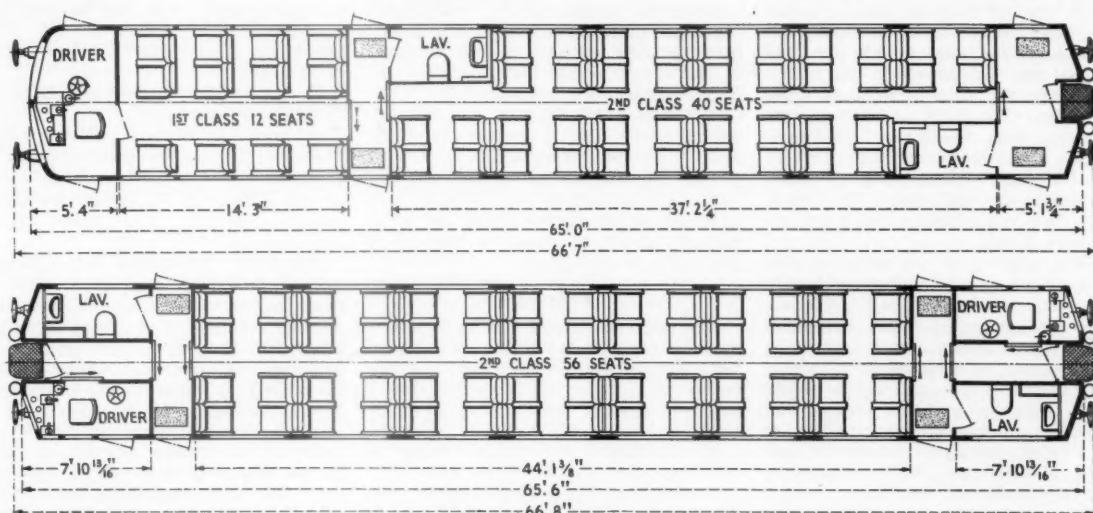
THE first train resulting from a programme of 24 new diesel railcars just completed at the Dundalk works of the Great Northern Railway Board will shortly be placed in commission on the Belfast-Dublin "Enterprise" services (10.30 a.m. from Belfast and 5.30 p.m. from Dublin), to replace existent steam working. While this initial train will consist of three powered cars and three intermediate non-powered coaches, more powered cars and coaches may be added to meet traffic requirements. Further services, on both main and secondary lines, will be operated as more railcars become available.

Of the 24 cars, the first 16 will be full second class and remaining eight will be composite first and second class, following generally the lines of the original 20 A.E.C. railcars placed in service in 1950. The second class cars are most versatile from an operational standpoint. They have double-end controls and gangways at both ends; these will permit use either as single units or in any position in the train. Through communication is also facilitated for serving refreshments, ticket checking, etc., even if additional coaches are attached to the rear of the train. Tubular rubber gangways are incorporated.

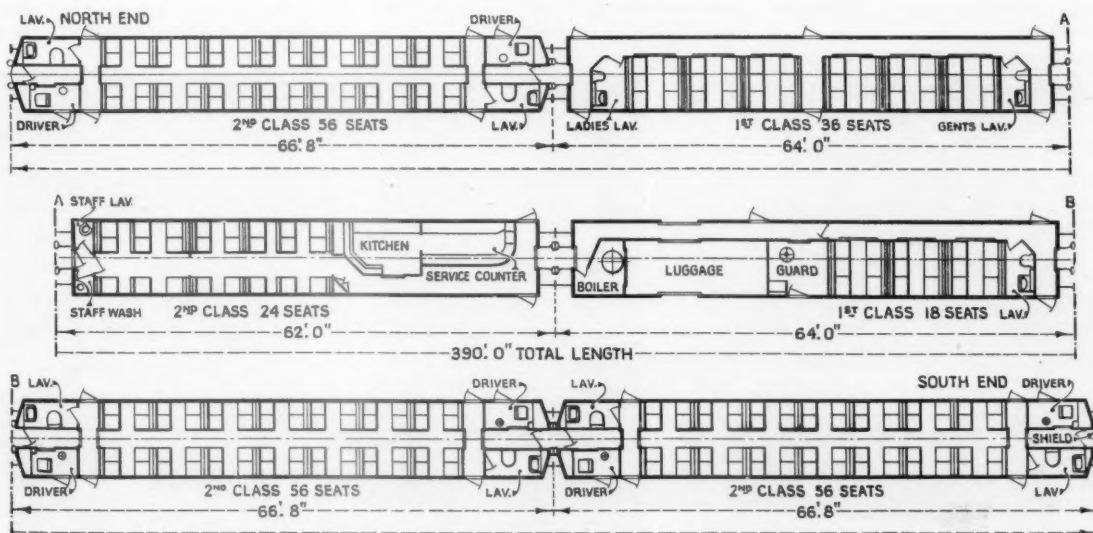
Composite cars will have driver's controls at forward end, and gangway at rear end, only. All first class seats, which are placed forward as in the original design, face forward and are tied to ensure unrestricted passenger view.

### Design

Certain major differences distinguish the new from the former design. While the A.E.C. vertical engine, fluid flywheel, and freewheel have been retained, engine capacity has been increased from 9.6 to 11.3 litres, h.p. at 1,800 r.p.m. now being 150. The former 5-speed pre-selective "Wilson" gearbox

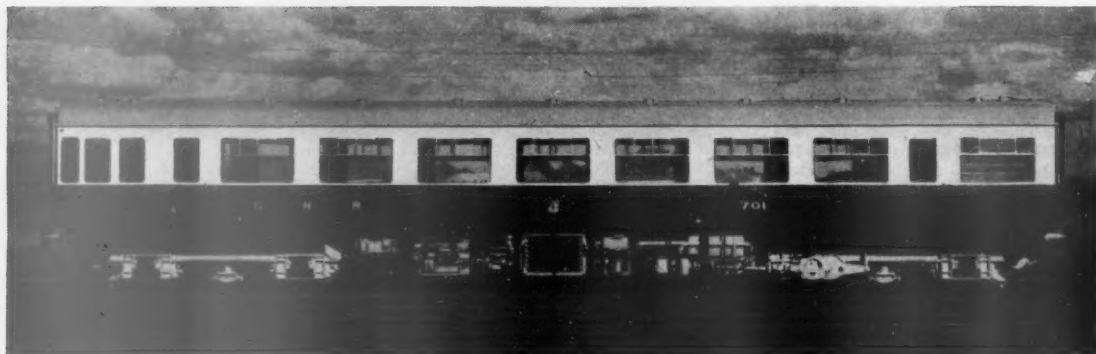


*Layout of composite and second class cars*



*Composition of the "Enterprise" when made up to six vehicles*





*General view of second class motor coach*

has been replaced by the 4-speed non-pre-selective type, direct-air-operated. This gives a maximum rail speed of approximately 80 m.p.h. in top gear. Throttle control is now hand-operated with "dead-man" device incorporated; the quick release brake system has been improved by the provision of  $1\frac{1}{2}$  in. dia. through pipes and couplings. The two rotary exhausters to each engine have been retained, and two 21-in brake cylinders of non-combined type are provided for each railcar, vacuum reservoirs being carried under the headstocks. Automatic brake slack adjusters have been fitted.

Saloon heating is provided by the circulation of engine cooling water by thermostatically - controlled electric pumps through gilled tubes concealed in a valance above floor each side. Initial heating is obtained by a steam pipe in the same valance. Steam supply for this purpose, and for heating the intermediate non-powered coaches, is from a 500 lb.-hr. capacity boiler housed in the intermediate brake coach, as diagrammatically illustrated.

Electro-pneumatic control enables one-, two-, three-, or four-powered cars, with or without up to four non-powered coaches, to form a train for multiple-unit working.

Electric supply at 24V. d.c. is provided by a Tonum 150 amp. generator mounted on the outside of the bogie and incorporating end-of-axle drive through a cardan shaft. A dual-regulator (current voltage) of the carbon pile type is used; this is mounted in the driver's cab directly over the bogie bearing the dynamo.

A 400-amp.-hr. alkaline battery consisting of 19 cells is housed under the floor in a dust-proof cradle.

The electrical system in each car can be completely cut off by a main battery isolating switch mounted adjacent to the battery, access to which is through a trap-door in the floor.

#### Lighting

Lighting in second class compartments is from 28 No. 6 Duriston single-light fittings for 20W. lamps. There are similar fittings in vestibules, corridor, and drivers' cabs. M. 1501 pillar light fittings flank lavatory mirrors, and an illuminated "toilet" sign is mounted over the lavatory door.

In the first class compartments, two three-light ceiling fittings with silver line glasses provide general lighting, and similar single-light fittings are incorporated in the luggage rack brackets for local lighting.

Three head lights separately controlled by two-way and "off" switches are fitted at each end of the second class cars, but at forward end only of composite cars. The top lamp is 36W. and two "side" lamps are 6W. Tail lamps are of the usual oil type carried on brackets.

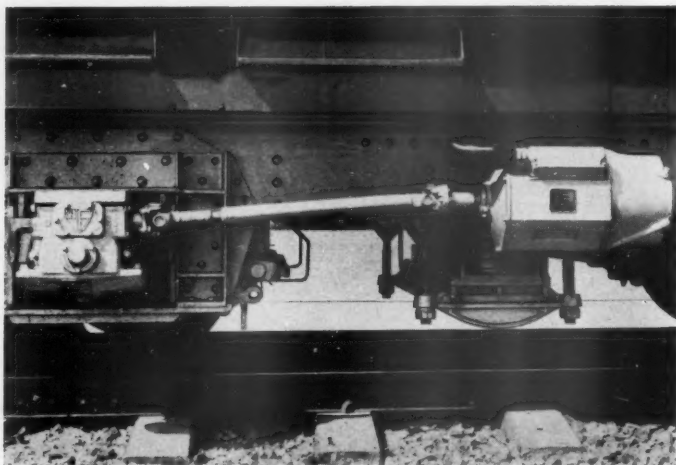
Guard-to-driver communication bells are fitted throughout.

At both ends of each power and non-powered car two 34-point jumper receptacles are fitted—one on each side of headstock—to facilitate control of engines, throttle, and gears on all powered cars.

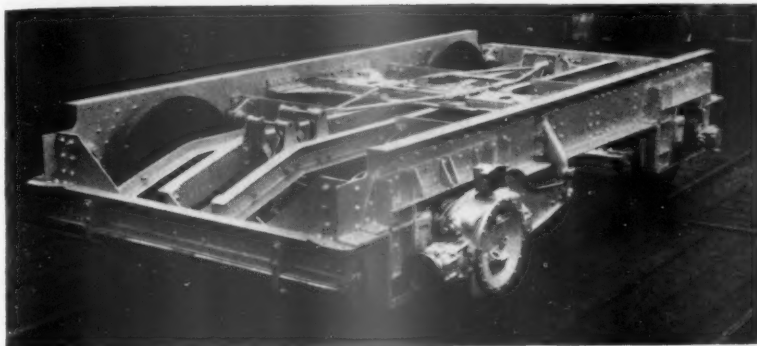
Normally, the control circuit in each driver's cab is isolated by a three-way royal switch with detachable key. This permits emergency switch-in from any other car battery in the train. The sequence of operation after closing main switch is as follows: direction either "forward" or "reverse" is selected and indication of the engagement of the chosen direction is given in the driver's cab by the air-pressure light for each respective car. Two micro-switches are mounted on each axle reverse box—one for "forward" and one for "reverse." Before the air-pressure light illuminates, either both "forward" switches or both "reverse"



*Hoffmann axlebox and Metalastic mounting*



*Stone generator and axle-mounted drive*



*General view of motor coach bogie*

switches must have been closed. Air pressure must be at minimum value before closure of the air-pressure switches (which are in series with "forward" and "reverse").

Engine starting is effected either by local "start" and "stop" buttons or by one start button in each cab for all right-hand engines through relays to starter solenoids. A second "start" button in each cab controls all left-hand engines through relays. To halt all engines one "stop" button is placed in each cab, which operates through engine stop solenoids.

#### Safety Devices

Water-level float and oil pressure switches in header tank and engine lubricating oil circuit respectively operate the engine-stop solenoid to shut down the relevant engine should water level drop or oil pressure fail. Warning of such an emergency is given to the driver through the extinguishing of the oil-pressure light.

Engine fire protection is by chlorobromomethane discharge system operated by a 20-ft. pyrotechnic cord placed over engine and flywheel. On the explosion of this cord through excessive heat or flame a switch closes to cause a current to flow to the extinguisher nozzle. A fuse is then blown, setting off the extinguishing charge and engine and flywheel are sprayed through a perforated copper pipe. As the switch closes a red indicator light shows at the defective engine. Should the fire persist or recur, an alarm is rung in the driver's cab. The defective engine can be isolated locally until destination is reached and the trouble can receive full attention.

Two hand controllers are provided in each cab—a combined "dead-man" handle and engine control for five positions, and a control for engaging the gears. The gear controller is interlocked with a removable direction-selection lever. The various car engine control and gear E.P. valves are energised from their respective car batteries, and controlled through relays. These operate from the train wires which are fed from the leading car battery through the driving control table. An abnormally heavy current demand on

the leading car battery is thus avoided. If the "dead-man" handle is released the engine controller drum returns to "idling" position and automatically disengages the gears, and the brakes are applied after a short time lag.

Engine speed indication is given in the driving cab. A speedo-alternator on the engine is also used to energise a relay which opens the starter solenoid circuits, and thus prevents engagement of the starter should the "start" button be pressed. A two-way switch on the table enables the driver to ascertain the speed of either engine on the leading car. A rail-speed indicator, consisting of an axlebox-mounted generator with connections to a wheel diameter adjustment box, is wired to an indicator calibrated in m.p.h. on the control table.

For passenger saloon heating a quantity of the cooling water from engine is diverted through the railcar by an electrically-driven water pump, capable of delivering up to 9 gal. per min. through the gilled water tubes around the car. Two separate water-heating circuits, one from each engine, serve each car. The pump circuit is closed by a thermostat in the engine water circuit, which is set at 175° F., and permits about 80,000 B.T.U. an hr.

Bogies, of more robust design than

those formerly used, incorporate Hoffman axleboxes, and for final-drive, B.U.T.-Skefko axleboxes. All axleboxes are provided with Metalastik bonded-rubber mountings instead of laminated spring suspension. While the usual type of spring bolster with coiled springs has been retained, hydraulic dampers have been fitted to absorb vertical oscillation. Friction damping of bolsters deals with lateral shocks.

Passenger communication is of full brake-application type and operates through the usual "pull" apparatus and end valve box. The small pipe from the valve box communicates with the "dead-man" solenoid valve in the railcars, and, in the non-powered coaches, with a diaphragm emergency valve. This ensures full brake application throughout the train irrespective of locality of "pull." Equipment for cancellation by the drive is not provided.

The chassis, except for bogies, buffer, and drawgear, was supplied by British United Traction Limited.

Bodies are of all-metal construction. Framing was supplied in unassembled condition, and assembly and finishing work was carried out at Dundalk. Seating, comprising tubular frames and Dunlopillo cushions and squabs, is specially contoured to ensure maximum passenger comfort.

Body framing is of aluminium alloy and steel sections with exterior side and end panels of No. 16G. aluminium and roof panels of No. 20G. mild steel. All exterior panelling is insulated by sprayed asbestos lining.

Passenger compartment interiors are finished with hardboard panels in pearl grey and off-white. End sliding doors are panelled with amulet green formica. Aluminium mouldings with green plastic insert are fitted round window openings and over panel joints. Sliding ventilators over side lights and roof extractors provide ventilation. Single parcel racks are fitted over each pair of seats, with brackets stove-enamelled dark green.

Lavatories are finished with pale



*Interior of second class motor coach, showing décor, and arrangement of seating*

green walls and cream ceilings, and fittings are chromium-plated. A 35-gal. roof tank provides water, which is heated for washing purposes by a water jacket placed round the engine water-circulating pipes.

### New Facilities for Meals

A departure from normal practice has been made. While a buffet car is incorporated, this vehicle is not intended for use exclusively as a refreshment car, since it is planned to serve meals throughout the train. For this reason arm rests of seats have been extended to take trays on which meals can be served. Refreshments will be prepared in the kitchen of the buffet car, but seats in this car, as in the rest of the train, may be occupied by passengers throughout the journey.

Ash trays inserted in the extended arm rests in smoking compartments of side corridor first class coaches form a feature of the new sets.

### LIST OF SUB-CONTRACTORS

Underframes complete with engines, transmissions and controls, but without bogie frames, buffers and drawgear	British United Traction Limited
Steel channels, angles, plates	Dorman Long (Steel) Limited
Vacuum brake equipment	Gresham & Craven Limited
Wheels and axles	Baker & Bessemer Limited
Non-driving axleboxes	Hoffmann Manufacturing Co. Ltd.
Rubber mountings for all axleboxes	Metalastik Limited
Generators and axle drive	J. Stone & Co. (Deptford) Ltd.
Shock absorbers	Newton & Bennett Limited
Alkaline batteries	Nife Limited
Body framework	Park Royal Vehicles Limited
Asbestos insulation	Sprayed Insulations Limited

Aluminium sheets and mouldings	British Aluminium Co. Ltd.
Sliding ventilators and ash trays	Hallam, Sleigh & Cheston Limited
Sliding door gear and drop windows	Beckett, Laycock & Watkinson Limited
Roof ventilators	Greenwood's & Airvac Ventilating Co. Ltd.
Tubular seat frames	Chrom Furnishings Limited
Dunlopillo cushions and squabs	Irish Dunlop Co. Ltd.
Upholstery cloth	B. Wood & Sons Limited
Electrical switchgear	Richardson Smith & Co. Ltd.
Formica panels	Bill Switchgear Limited
Drivers screen wipers	Thomas De La Rue & Co. Ltd.
Gilled heating pipes	Trico-Folberth Limited
Fire extinguishing equipment	Spiro-Gills Limited
Door locks and handles	Graviner Manufacturing Co. Ltd.
Lavatory flushing valves	Joseph Kaye & Sons Limited
Lavatory floors	A. G. Wild & Co. Ltd.
Wire panels for parcel racks	Verso Bros. Ltd.
Neoprene rubber sheets for gangways	Steel Cate & Wire Industries Limited
Sylglas sealing tape	Clyde Rubber Works Limited
Spanner heating boilers	Winn & Coles Limited
Plastic trays	Spanner Boilers Limited
	Thermo-Plastics Limited

### First Type "A" Diesel-Electric Locomotives for British Railways

(Concluded from page 650)

bolster is limited by rubber blocks. The axles are carried by Timken tapered roller axleboxes.

### Brake Gear

Clasp-type brakes are fitted on all wheels, the air brake cylinders, four on each bogie, being mounted on the bogie solebars. The brake gear is the Oerlikon type manufactured by Davies & Metcalfe Limited, the locomotive being fitted with air brakes, whilst providing for braking vacuum-fitted trains. Two brake handles, one controlling the straight air locomotive brake, the other the vacuum train brake, are located at each driving position. There is a vacuum/air proportional valve on the locomotive which ensures that when a vacuum brake application is made on the train, there is an automatic proportional application of the locomotive air brake. A deadman's pedal is provided at each driving position, when this is released it cuts off power and applies the locomotive and train brakes.

### Equipment Layout

The cab of the locomotive is positioned at one end, behind which is the engine compartment. The engine compartment contains the control cubicle which is mounted transversely across the locomotive; one side of the cubicle faces directly into the cab. The engine compartment also contains one of the traction motor blowers together with the power unit itself. On the bulkhead behind the power unit the motor-driven fuel pump and lubricating oil priming pump are mounted together with the fuel filters.

Beyond the engine compartment is the fan compartment which contains the radiators, the roof-mounted radiator fan, and the right-angle gear-

box for the fan drive. The end compartment contains the exhaustor and compressor together with the second traction motor blower.

### Ventilation

Oil-wetted filters are provided in the sides of the locomotive. The bulkhead between the fan compartment and the engine compartment is provided with openings through which the radiator fan is allowed to draw a large volume of air. This air enters the engine compartment through filters located towards the cab end, so that there is a flow of cooling air past the power unit.

The diesel engine and generators, together with one of the traction motor blowers, draw their air from the filtered supply in the engine room. The end compartment is provided with filters in its sides, and air is drawn into this compartment by the traction motor blower and compressor.

Sub-contractors include:—

Westinghouse Brake & Signal Co. Ltd.	Air compressing equipment
Trico-Folberth Limited	Windscreens wipers
D. Napier & Son Ltd.	Engine turbochargers
Davies & Metcalfe Limited	Air brake equipment
British Timken Limited	Roller axle-boxes
Spiral Tube & Components Co. Ltd.	Engine coolers
J. Stone & Co. (Deptford) Ltd.	Locomotive lighting
Smith's Industrial Instruments Limited	Speedometer equipment
D.P. Battery Co. Ltd.	Batteries
Beckett, Laycock & Wilkinson Limited	Windows
Consolidated Brake & Engineering Co. Ltd.	Vacuum exhausting equipments

**HEAVY CONCRETE BEAMS EASILY AND CHEAPLY MOVED.**—To lift and move 34 pre-stressed concrete beams each 100 ft. long and 11 ft. deep and weighing 71 tons, Mr. R. N. Hill, of Lakeland Engineering Associates Inc., U.S.A., devised a simple lever device. The fulcrum of this lever is supported on an A-frame running on a rail at right angles to the beam to be lifted. A short distance along the lever from the fulcrum, threaded clevises are pinned to the lever and are attached to a lifting bolt cast vertically into the top of

the beam close to its end. At the other end of the lever remote from the fulcrum and lifting bolt—which are close together—is a small jack resting on the beam and under the lever. Even though the jack is on the beam, a comparatively small lifting force in the jack raises the lever, lifting the end of the beam clear of its bed. One such device at each end of a beam enables it to be traversed along the rails.

**LONDON TRANSPORT COUNTRY AREA GARAGE.**—A new design of bus garage has been evolved by London Transport architects for use in the country area, and particularly where a garage is necessary in one of the new towns. Work will start soon on the prototype, to be erected at Stevenage, and others will follow at Hatfield and Harlow New Town. Each will take about 18 months to complete. All three will be similar except for the positioning of buildings in relation to one another and the layout of driveways, which will vary according to the restrictions of individual sites. The design provides for a covered parking area flanked by workshops and stores, with administrative offices, staff canteen, public enquiry office, and so on, housed in a separate single-storey building.

**POWDER METALLURGY JOINT GROUP.**—The councils of the Iron & Steel Institute and of the Institute of Metals have formed a Powder Metallurgy Joint Group, the objects of which will be to study the science, technology, and practice of powder metallurgy. Membership will be restricted to members of the Iron & Steel Institute and of the Institute of Metals, though the meetings of the Group, as of the two Institutes, will be open to non-members. The inaugural meeting of the Group will be held at Church House, London, S.W.1, on December 4, 1957, from 10.30 a.m. to 4.45 p.m. The programme includes a lecture by Dr. Ivor Jenkins on "Recent Developments in Powder Metallurgy"; presentation of short papers on "Developments in the Production and Quality of Metal Powders"; and a discussion on "Developments in the Production and Quality of Metal Powders." Further particulars may be obtained from the Secretary, the Institute of Metals, 17, Belgrave Square, S.W.1.



## ELECTRIC RAILWAY TRACTION SECTION

### The 50-Cycle Motor in Japan

**A**N important future for the 50-cycle traction motor in Japanese railway electrification is foreseen in the report of the Electrification Investigation Committee published by the Japanese National Railways in January. The programme of converting existing steam-worked and d.c. lines to a.c. traction, which was outlined in our issue of November 25, 1956, has been based on the committee's findings. Comparative trials of locomotives equipped with 50-cycle motors and with rectifiers were carried out, and while the rectifier system showed its superiority in respect of adhesion when starting heavy loads on adverse gradients, it was evident that many traffic requirements would be met adequately by the use of a.c. traction motors. It is considered that circumstances in Japan will favour the building of lightweight, high-speed locomotives and motor coaches rather than heavier units employing converter systems, and a preference is stated for the use of 50-cycle motors in motor coach stock. For this reason further research in the design of series commutator machines for industrial frequencies is regarded as essential. Advantages are seen in saving of weight, partly because better utilisation of the material in the main transformer core permits lighter construction, and in the fact that for a given output the a.c. motor is of larger diameter but shorter shaft length than a d.c. machine. The 3 ft. 6 in. gauge of the Japanese National Railways therefore does not restrict seriously the installation of high-power motors.

It is suggested in the report that it will soon be possible to build locomotives with 50-cycle motors to haul loads up to 500 tons against a steepest continuous gradient of 1 in 100, and to have a top speed of 74.5 m.p.h. Rectifier designs are proposed for passenger and freight service with maximum load of 1,000 tons and speeds up to 62 m.p.h.; and for a freight locomotive to haul up to 1,200 tons and have a top speed of 47 m.p.h.

Three makers submitted 50-cycle motors for test, and the trials were conducted with only one bogie of the experimental locomotive under power at a time, each bogie being equipped with the machines of a different maker. In these conditions one design of motor gave a balancing speed of 39 m.p.h. up a gradient of 1 in 110 when hauling 180 tons, the controller being on the 13th notch. As there were three notches in reserve, and it was evident that the stipulated 40 m.p.h. could be exceeded, the locomotive was not notched up further. Starting tests with the same load against a gradient of 1 in 40 were also undertaken with 50-cycle motors, and adhesion coefficients between 27 and 28 per cent were obtained. The rectifier locomotive, with 200 tons in the same conditions, showed an adhesive factor as high as 35.5 per cent and also operated at a higher power factor—87 to 88 per cent as against 86 per cent with the most successful of the 50-cycle machines and from 74 to 78 per cent with its competitors. The rectifier locomotive used the customary all-in-parallel arrangement of the traction motors, whereas those of the 50-cycle locomotive are normally in series-parallel. Both locomotives had low-tension control, but whereas the rectifier locomotive had 35 notches, including 15 for voltage control by phase adjustment in the ignitrons and three steps of motor field-weakening, the locomotives with 50-cycle motors had 16 control notches only.

The general conclusion as to the effect of the transformer e.m.f. in reducing starting torque in a 50-cycle motor was that this proved less serious than had been expected, and that adhesion was the limiting factor in starting performance rather than commutation. During the tests against a gradient, the train was started on the eighth notch with one 50-cycle motor design, although with the other two it was necessary to go to the 13th or 16th

notches. Fairly violent sparks when starting in full-adhesion conditions are attributed to red-hot particles caused by abrasion of the brushes, while it is thought that commutation at speed suffers more from mechanical impact than electrical causes. The motor with the best performance is a 14-pole machine with a 1-hr. rating of 449 h.p. and taking 2,350 A. at 200 V. An ordinary axle-hung arrangement was used in order that the motors should be subjected to conditions similar to those in which the motors of existing 1,500-V. d.c. locomotives operate. On the basis of results so far, it is not considered difficult to build motors for operation on the 60-cycle industrial frequency used in some parts of Japan.

This confidence in the possibilities of developing the 50-cycle motor along conventional lines is less usual today than it was a few years ago. No less an expert than Monsieur F. Nouvion of the French National Railways has said that "what is required is a revolution rather than evolution" and that preoccupation with a volt or two of transformer e.m.f. in the ordinary series machine is not the road to improvement. There is general agreement, however, that the idea of using industrial-frequency current in traction machines is too attractive to be abandoned. In the long run it may prove to be the decisive point in favour of a.c. electrification.

### New L.M.R. Suburban Trains

**T**HE London Midland Region began on May 27 the process of replacing existing trains on the Euston—Watford and associated electric services with new rolling stock built at Eastleigh and conforming with British Railways standard practice. These 57 three-car units, described on another page, implement the second renewal of electric rolling stock undertaken by the Region in the past 12 months, the previous example being the 24 new Mersey sets described in our issue of September 28, 1956. In both cases simplex control of the four motors in a motor coach has been adopted, each bogie carrying two motors in permanent parallel, and the two groups being connected in series or parallel by a single control equipment. This system economises in contactors compared with duplex control, in which the two motors in each bogie are controlled separately, each pair being connected first in series and then in parallel during acceleration. Another similarity between the Euston—Watford and the Mersey trains is that provision has been made in both for emergency starts on severe gradients with two motors in a motor coach isolated, the former being required to start in these conditions if necessary on the 1 in 37 of the Primrose Hill flyunder, and the latter to confront the even more severe obstacle of a 1 in 27 grade on the tunnel section.

The Euston—Watford sets are the fourth for this service to be equipped by the General Electric Co. Ltd. Air-operated cam groups are used both for reversing and field control, and a new design of motor cut-out switch, with contacts similar to those of the cam groups, is operated by a three-position handle permanently in position on the end of one equipment case. Seven motor coaches are being fitted with new shoe gear incorporating rubber for noise-damping and springing, and 15 driving trailers will be equipped with de-icing equipment to feed fluid to the live rails through the shoes, the supply being cut off automatically by electro-pneumatic valves when a shoe is out of contact with the rail or when the brakes are applied. These trains replace rolling stock which by reason of its spaciousness and smooth riding has long been a distinctive feature of services from Euston and Broad Street, and on occasions has used its weight and amply-rated resistances to good effect in providing banking assistance for steam-hauled goods trains in difficulties.

## Paris-Lille Electrification

*The whole of this 50-cycle scheme of the S.N.C.F. is due for completion in 1958*

**A** FIRST step was taken at the beginning of this year in electrifying the system of main and subsidiary lines, totalling some 353 miles, comprised in the Paris-Lille 50-cycle, 25-kV. electrification programme of the French National Railways. The section concerned is that from Valenciennes to Somain, with the single-line branch from Somain to Azincourt, both of which were converted to electric operation on January 8.

Nearly a tenth of the population of France is served by the railway routes between Paris and the Nord Department. Many industries are sited in the Northern Region of the S.N.C.F., but coal traffic predominates in its operations. Some 30 million tonnes are produced annually in the Nord and Pas-de-Calais areas, and about 75 per cent of the coal despatched from the mines

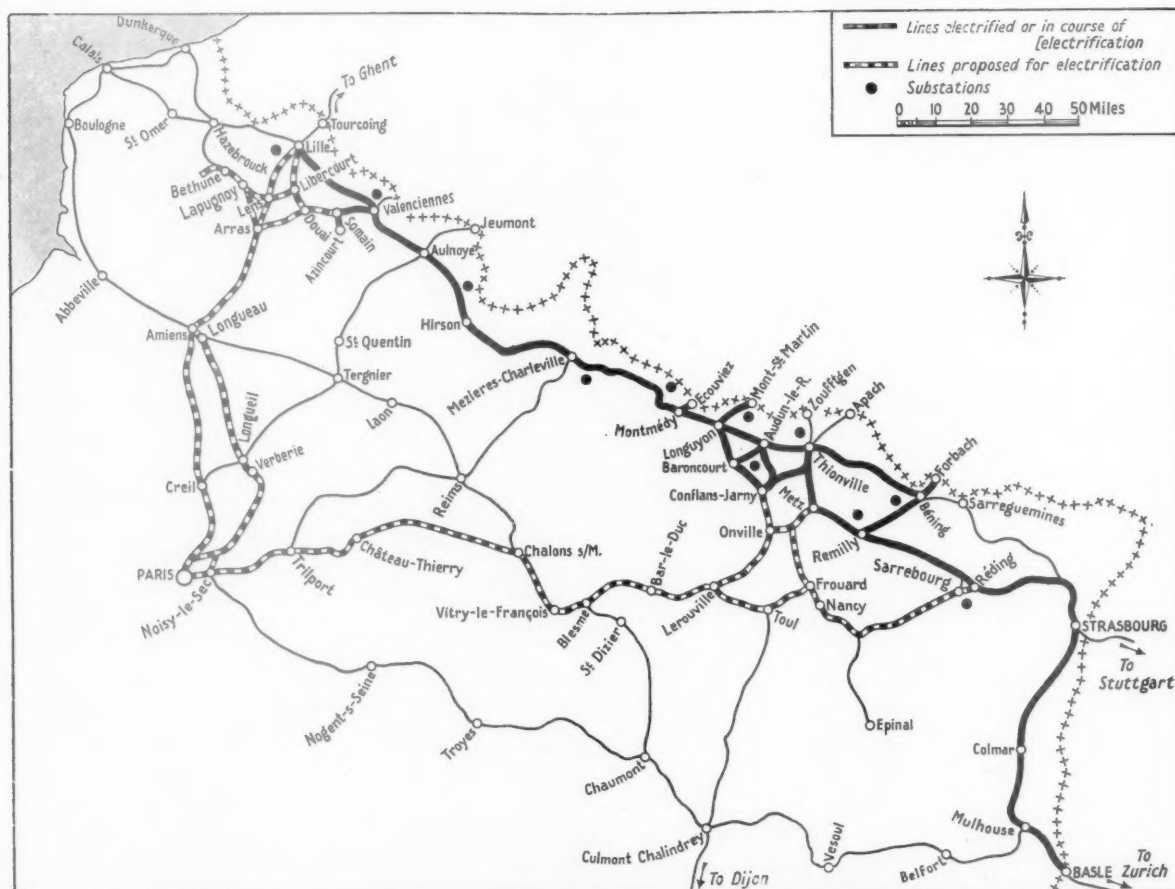
goes by rail. The collieries face considerable competition from imported coal, particularly in the Paris area.

Already the growing use of oil fuel is a further problem for the coal producers, and the competitive element is expected to increase in future with the European Common Market plan. It was to alleviate difficulties of this kind that in 1953 the situation was studied by a committee, and with the backing of the Mines and Iron & Steel Directorate of the Ministry of Industry & Commerce, and the Charbonnages de France, the S.N.C.F. was urged to give priority in its electrification programme to the Paris-Lille scheme (Electrification Nord-Paris). Economically, the scheme was attractive, for the quantity of coal sent to Paris by waterways does not exceed 1½ million tonnes a year and is primarily for domestic consumption.

Work began in 1955. The first section was completed at the beginning of this year as recorded above. The Somain-Douai-Longueau and Libercourt-Douai lines will be completed at the end of the year and the whole of the Paris-Lille main line by the end of 1958.

### Lines to be Electrified

The lines covered by the scheme as a whole were listed in our December 23, 1955, issue, but are repeated below for reference:—(1) Paris-Lille via Creil, Amiens, Arras and Douai; (2) lines feeding colliery traffic to the main line: Lapugnoy-Arras, Valenciennes-Douai, Lens-Douai; (3) Lille-Délivrance—Lens; (4) the single line from Somain to Azincourt (Usinor); (5) Pierrefitte-Bobigny-Noisy-le-Sec; and (6) the goods line from Paris to Longueau via Verberie. It is possible, however, that the



*Electrification in progress or proposed in the Northern and Eastern Regions of the French National Railways. The map does not show certain lines which it has now been decided to electrify, notably Creil to Aulnoye and Busigny (N.E. of St. Quentin) to Somain in the Northern, and Epernay to Reims and Toul to Dijon in the Eastern Region*

Verberie-Longueau section might not be proceeded with if it were decided to electrify eventually from Creil to Aulnoye (en route to Belgium).

#### Influence on Fuel Economics

The effect of this electrification on the economics of fuel production and consumption in France is of national rather than regional importance. At present, with steam traction, this system of lines consumes over 300,000 tonnes of coal a year, much of which is coking coal. Electric traction will enable low-grade, non-saleable coal to be burned in power stations in the mining areas of the Bassin du Nord, and the energy thus produced to be used with very low loss because of the short distances over which it has to be transmitted. At the same time, coking of the high-grade coal thus released will be set against essential imports.

Joint studies by the S.N.C.F. and Electricité de France show that eight new S.N.C.F. substations will be needed, while the existing ones at Lille and Valenciennes, built for Stages 1 and 2 of the North-East Electrification, will share the Nord-Paris load in their areas. Five of the substation sites (St.-Denis, Creil, Lamotte-Amiens, Dechy-Douai, and Mazingarbe) have been chosen close to large E.D.F. switching stations so as to limit the cost of high-tension connections, the total length of which will not exceed 56 cable-miles for 45, 63, or 90 kV. transmission. The St. Denis substation will be connected to the St. Denis switching station of the E.D.F. by two 63-kV. cables.

#### Substation Equipment

The substations will be equipped with Scott-connected transformers (3-phase to 2-phase) having ratings of  $2 \times 7,500$  or  $2 \times 10,000$  kVA., except at

Mazingarbe, which will have a 10,000 kVA. single-phase transformer. A standby equipment will be installed at certain substations. The estimated power consumption is 270 million kWh. a year. All substation, track sectioning, and track-paralleling switchgear will be remotely controlled from control rooms at Paris and Douai.

The overhead line will be a polygonal catenary of the type used on the Lille-Basle electrification, consisting of a catenary and a contact wire of about 0.23 sq. in. total cross-section throughout. S.N.C.F. and P.T.T. communication circuits will be in cables. The S.N.C.F. cables will vary from 14 to 27 pairs and this system will include nine repeater stations under partial remote control from Paris and Amiens. Automatic colour-light signalling is already working or in course of installation on the Paris-Lille, Arras-Béthune, and Lens-Ostricourt lines and will be extended to the Douai-Somain section.

Accompanying the electrification, a special scheme will be carried out at the Gare du Nord, Paris, to facilitate working and promote economy. Platforms will be lengthened, the track layout simplified, control of signalling concentrated in fewer boxes, and an additional running line provided in the cutting. The large overbridges at the approach to the station (Pont St.-Ange and Pont-Jessaint) would have had to be rebuilt in any case to allow clearance for the overhead system and have in fact been altered by the removal of two intermediate piers in each case. A further rebuilding scheme is in progress at the passenger station at Lille.

#### Locomotives

The locomotive stock will consist of 20 high-speed Bo-Bo with ignitron rectifiers; and 61 mixed traffic Bo-Bo,

also with ignitron rectifiers. The mixed-traffic locomotives will be similar to those used in the Lille-Basle electrification, while the high-speed series will be a new design for working the Paris-Lille express services.

It is also intended to provide 60 lightweight Bo-Bo ignitron rectifier locomotives weighing 60 tons designed to permit simple adjustment of gear ratio according to the duties to be undertaken, which will be either to work passenger trains at 87 m.p.h. or goods trains.

#### Revised Operating Arrangements

As a result of this programme 346 steam locomotives and five high-speed diesel sets will be released. Some of the steam locomotives will be allotted to new depots where they will displace older classes of lower efficiency, and about 80 will be sent to work on other lines. Projected accelerations of passenger trains were referred to in our previous article and mention was made of the proposed diversion of traffic on to the newly-electrified lines. In particular, west-east traffic will be worked via Amiens, Valenciennes, and Hirson, instead of via Amiens, Tergnier and Laon as at present. Parcels trains, which are particularly numerous between Amiens and Paris, will convey heavier loads and be accelerated.

The Paris-Lille scheme is the second stage in electrification of the Paris-Nord-Est triangle, which connects the principal centres of economic activity in France. The northern side of the triangle has been converted already between Lille and Strasbourg and extension of electrification to Basle is now in progress. After the Paris-Lille lines have been converted, the sections remaining to be dealt with will be Paris-Sarrebouurg, and Lérrouville-Metz.

**HUNDRED END GOODS DEPOT TO CLOSE.**—The London Midland Region announces that the goods depot at Hundred End Station, between Preston and Southport, will be closed for all traffic on June 3. Alternative arrangements will be made for merchandise and minerals traffic; coal class traffic will be sent to destinations requested by traders.

**ALUMINIUM IN ELECTRICAL ENGINEERING.**—The Council of the Aluminium Development Association on May 16 held a symposium "Aluminium in Electrical Engineering," at the Institution of Electrical Engineers, London, W.C.2. The first session was concerned with general and economic considerations in the use of aluminium in electrical engineering, and was under the chairmanship of Mr. G. W. Lacey; it opened with an introduction to three papers by Mr. L. V. Chilton. The free and informal discussion which followed set the pattern for subsequent sessions. The second day's proceedings were divided into two sessions, the first dealing with aluminium in transmission and distribution lines, under the chairmanship of Dr. H. G. Taylor; newly appointed

Director of the Electrical Research Association, with papers introduced by Mr. W. J. Nicholls. For the concluding session on aluminium in electrical equipment, Mr. R. D. Hamer took the chair, and six papers were introduced by Mr. A. Gregory.

**EASTERN RAILWAY OF INDIA ELECTRIFICATION WORKS.**—At all railway level crossings on the Eastern Railway Howrah-Burdwan main line and the Tarakeswar branch where electrification work is in progress, road load height gauges have been erected to indicate a clear height of 16 ft. The gauges are intended to prevent loads of excessive heights from coming into contact with the 3,000-V. contact wires.

**LIVERPOOL SPEKELAND ROAD MODERNISATION.**—Spekeland Road Goods Depot, Liverpool, is to be modernised by British Railways, London Midland Region, as the first step in a general scheme for the reorganisation of goods terminal working in the Liverpool and Birkenhead area. At the outset, all forwarded consignments of sundries traffic at present dealt with at the Edge Hill Goods Depot will be transferred to Spekeland Road. After experience has

been gained with the new working, it is the intention to consider the transfer to Spekeland Road of the Liverpool forwarded sundries now dealt with at the Birkenhead Morpeth Dock Goods Depot. To equip the Spekeland Road depot to handle sundries traffic, some 190 tons daily ultimately, a new goods shed will be built there. The depot is to have a new office and amenities building, modern weighing facilities, new entrance gates and improved lighting. Certain permanent way work is also necessary. The work is expected to be completed by February, 1958.

**L.M.R. EXCURSION FOR PHOTOGRAPHERS.**—A special excursion for amateur photographers, including a trip on a Lake Windermere steamer, with prizes for the best pictures taken during the day by the passengers, has been arranged by British Railways, London Midland Region. The train, which will include a buffet car, will leave Manchester Victoria at 8.35 a.m. on June 16, picking up additional passengers at Pendleton, Bolton, Chorley, Leyland, and Preston. Special stops will allow passengers to use their cameras in the competition.



## New Electric Stock for Euston-Watford Line

*Three-coach units to replace existing multiple-unit sets*



*Train of two three-coach sets at Stonebridge Park Depot*

**T**HE first of 57 new three-car multiple-unit electric trains for the Euston-Watford and Broad Street-Richmond services of British Railways, London Midland Region, was put into operation on May 27, to replace the existing multiple-unit sets as they are withdrawn. Each unit has a motor saloon brake, a compartment trailer, and a driving trailer saloon brake, and provides accommodation for 256 passengers. Power is supplied to the trains at a nominal 630-V. d.c. on the third- and fourth-rail system.

### Bodies

The general construction of the body and roof framing is similar to that of the British Railways standard main-line steam stock coaches, which enables many standard components such as body pillars, rails, cantrail, and roof members to be used, avoiding the necessity for the provision of new press tools and construction jigs. Many standard fittings are also used in the interior of the coaches, and wherever possible other standard British Railways main-line steam stock components have been adopted to meet the requirements of non-gangwayed suburban electric coaches.

The saloon seat ends are inclined from the floor towards the body sides, so forming a centre gangway with maximum possible width at shoulder height and yet providing the widest possible seating room, this being arranged for two and three passengers either side of the gangway, with seating for six passengers at each transverse partition. Six seats each side are

provided in the compartments of the trailer coaches.

Parcel racks of aluminium castings and tubes with special quality netting, are provided over seat backs and on transverse partitions. Electric heaters are fitted under all seats with protection grids to prevent litter from accumulating around the heater. The ceilings and transverse partitions above seat backs are finished in decorative plastic panels, the remaining interior panelling is of decorative veneers. The floor is constructed of multi-ply timber panels

carried on pressed steel framing members welded to the underframe, the whole being covered with linoleum. In the motor coach, accommodation is provided in the floor for cable conduits, by the use of aluminium panels in lieu of the multi-ply floor panels in part of the centre portion.

### Underframe

The underframes are the British Railways standard all-welded type with deep main longitudinal centre girder and cantilever transoms to the 7-in.  $\times$  3½-in. channel solebars. The use of this type of underframe, without side truss angles, provides much easier access to the electrical equipment carried underneath the coach and enables the frames to be built in existing jigs used for the construction of British Railways standard steam stock underframes.

Westinghouse electro-pneumatic brakes are fitted, each coach being equipped with one brake cylinder with automatic slack adjuster. A hand brake is also provided which acts on all wheels and is operated by hand wheel fitted in each driver's compartment. The brake rigging is partly compensated on the motor coach with adjustable equalising and compensated rigging on the trailer and driving trailer, and fitted with standard British Railways cast iron refill brake blocks throughout. Coupling between coaches is by gudge hook and screw coupling.

### Bogies

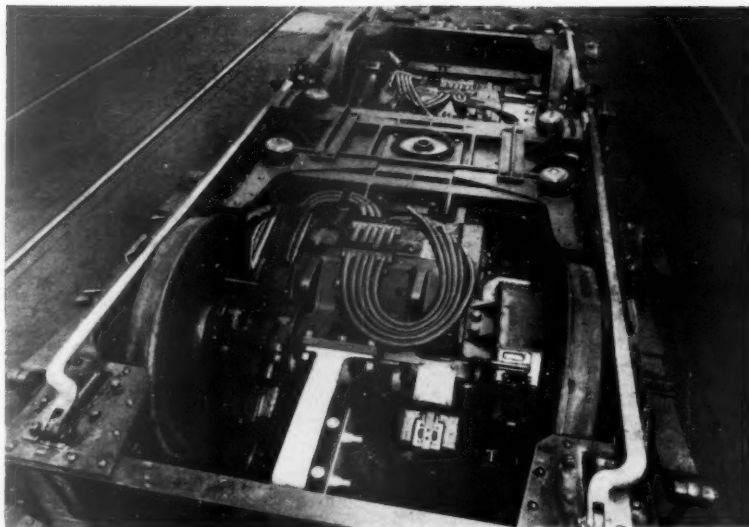
Both the motor and trailer bogies incorporate the principal design features of that adopted as standard for British



*Interior of coach, showing seating arrangement*

Railways main line steam stock, but having a single centre bolster suspended from inside the bogie frame. The motor coach is fitted with two motor bogies which are mounted on 3-ft. 4-in. dia. wheels, one motor being fitted on each motor axle, with the motor nose resting on a rubber block carried on a bracket welded to the bogie transom. The suspension bolts securing the motor nose to the bracket pass through the mounting and contain the rubber springs which cushion the upward thrust of the motor nose; lateral control of the motor nose is also rubber cushioned.

The trailer and driving trailer bogies are fitted with British Railways standard 3-ft. 6-in. dia. wheels and axles having 7-in.  $\times$  4 $\frac{3}{8}$ -in. journals, the journal size of the motor bogie being 10-in.  $\times$  5 $\frac{1}{2}$ -in. and 7-in.  $\times$  4 $\frac{3}{8}$ -in. The bogie axleboxes are for parallel roller bearings of the Hoffmann type. All bogie axleboxes, horn cheeks and bolsters are



*Motor bogie, showing arrangement of equipment*

The master controller and brake controller are self-contained units mounted on brackets from the front of the cab framing, and contained in the instrument panel on the left of the cab are the pressure gauges, speedometer, window wiper, and dimmer switch. Two large windows are provided in the front of the cab with a roller type of route and destination indicator between them, both windows and indicator being fitted with  $\frac{1}{4}$ -in. thick toughened plate glass. The driver is provided with a tip-up adjustable seat and an additional tip-up seat is fitted for the use of drivers under instruction.

The guard's compartment in these units is in accordance with the standards agreed for all British Railways coach-

ing stock, and includes many standard components.

#### Electrical Equipment

Positive and negative shoe gear is provided on both bogies of the motor coach and on the bogie at the cab end of the driving trailer, all being interconnected by bus lines. On seven motor coaches a new design of shoe gear is fitted which has been developed to improve current collection, reduce wear and eliminate the noise emitted by normal types of gravity shoe gear when not in contact with the conductor rail.

Power is fed to bus lines running throughout each unit which supply the four motors, the auxiliaries and the



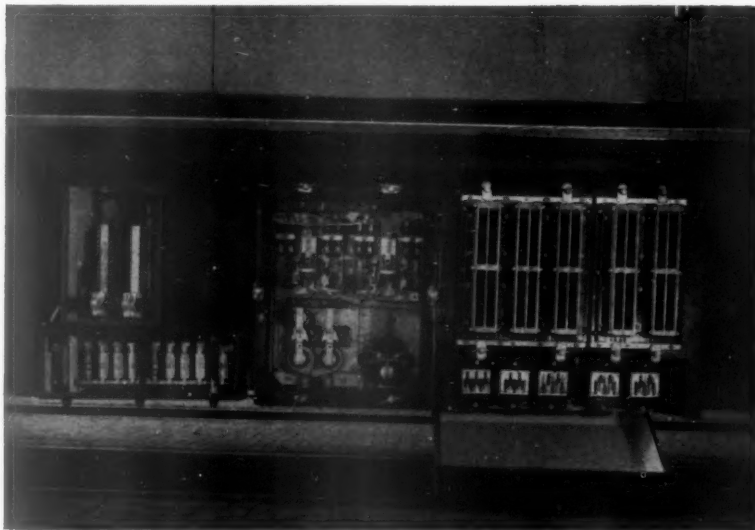
*Driver's compartment in motor coach*

fitted with manganese steel wearing plates.

Bogie frame sub-assemblies are fabricated in jigs, these being riveted together to form the bogie structure. The bolster suspension is by means of a non-adjustable swing rod from the bolster transom, both top and bottom spherical seating being in phosphor bronze and the bolster coil springs of heavy rectangular section steel. The motor bogie is fitted with nine-plate, laminated-side bearing springs, and the trailer and driving trailer bogies with seven-plate springs.

#### Driver's Cab

A particular feature of these units is the accommodation provided in the driver's compartment, entrance to which is made through a sliding door from the adjacent guard's compartment in the motor coach and driving trailer coach, no outside doors being fitted to the compartment itself.



*Motor isolator (left) and equipment case containing main relays and line contactors on motor coach underframe*

## Electric Traction Section

heaters on the motor coach, and the heaters on the trailer and driving trailer. Bus line connections between coaches and units are made by jumpers and power receptacles of a new design, in which line contact with the plugs is obtained by the use of spring-loaded fingers.

Ratings of a four-motor unit are as follows:—

		Full field	Weak field
Continuous	.. ..	540 h.p.	600 h.p.
One-hour	.. ..	680 h.p.	740 h.p.

The two motors in each motor coach bogie are connected permanently in parallel and all are fed through a double-pole isolator. Either pair can be cut out of circuit by a hand-operated motor cut-out switch.

The main electro-pneumatic contactor control equipment, relays, motor isolator, and motor cut-out switch are housed in three equipment cases on the motor coach underframe. The contactor interlocks are accessible from the front of the cases and are protected by Perspex covers. The field control and reverser switches are air-powered, cam-operated groups employing contact elements of new design. The motor cut-out switch is similar but hand-operated.

By connecting the two groups of motors in series or parallel (simplex control), control is obtained with a single equipment, as compared with the two equipments required with individual series/parallel control of two pairs of motors (duplex control). The first master controller notch provides for shunting movements, the motor groups being in series and all resistance in circuit. On the second notch automatic acceleration to full series is effected. Bridge transition and automatic acceleration to full parallel under the control of a current limit relay takes place on the third notch, the resistance sections in each group being short-circuited in pairs. In order to improve the balance of the bridge, one section of resistance which is in circuit on the first notch is not re-inserted at the transition stage. Further increase in speed is obtained by moving the controller to the weak-field position, on which, under the control of a separate weak-field relay, a portion of each field is first shunted by a resistance and the fields are finally weakened by tapping.

There are two forward positions of the reverser handle, the first giving a rate of acceleration of 0.92 m.p.h.p.s. and the second, by energising the shunt coil of the current limit relay through a resistance, giving the normal rate of 1.25 m.p.h.p.s. A third rate is available for emergency use when starting on the 1 in 35 gradient of the Primrose Hill flyunder if a pair of motors has been cut out. It is obtained by placing the reverser handle in the normal rate position and operating a pushbutton to

short-circuit part of the resistance in series with the current limit relay shunt coil.

When the motor cut-out switch is used to isolate either pair of motors, its contacts modify the control circuit so that all motors in the train accelerate to parallel irrespective of whether the controller is at series or parallel, and the weak-field position is inoperative on the unit with isolated motors. On the affected unit, the normal notching of both groups of resistance is retained.

### Overload Relay

Each overload relay has two trip coils, one being connected at each end of the associated motor circuit leg. In the event of an overload, a protective resistance, which is not used for notching, is brought into circuit to limit the fault current before final rupture takes place. Contacts on the overload relays energise an indicator relay which latches itself in and causes an indicator lamp to light. The lamp remains alight, providing the train line key is in position, after the overload relays have been reset from the driver's push-button. The unit in which the fault occurred can therefore be identified at the depot by reinserting the key. After the defect has been cleared the indicating relay is reset by hand.

A no-current relay is arranged to drop out the line switches and resistance contactors in case of an interruption of supply. If the interruption is momentary and the controller has been left on any notch, the equipment will notch up automatically to that position when power is restored.

The motor-generator set, compressor, and battery are carried on the motor coach underframe. Provided the motor-generator isolator is closed, insertion of the train line key energises the motor-generator contactor and starts the set on the unit concerned. During daylight running with trains consisting of more than one unit, only the set on the motor coach where the key has been inserted is in operation, but if the passenger lighting is switched on, a contactor on the lighting set-and-trip relay energises the motor-generator contactor coils in the other units.

### Lighting

A battery floats across the 52-V. output from the motor-generator set and is of sufficient capacity to supply the control load, and the cab, van, route-indicator, and other essential lights of a six-car train for about 2 hr. Passenger lights are fed direct from the l.t. generator. There are two separately-fused lighting sub-circuits in each car so that a lighting fitting fault may be cleared by its own circuit fuse before the main lighting fuse blows, thus avoiding a general failure of lighting. A cupboard in the motor coach cab houses the majority of the l.t. control equipment, including the voltage regulator, lighting and battery charging contactors.

In 15 of the units the driving trailers are equipped with de-icing fluid reservoirs from which the fluid can be fed to the conductor rails via the shoe gear. The supply of fluid is controlled by electro-magnetic valves which can be energised by the operation of de-icing pushbuttons at each driving position when the reverser is in either of its "forward" positions. A de-icing relay connected across the E.P. brake train line opens the circuit to the valves when a brake application is made. Contacts operated by linkage connected to the positive collector shoes are arranged to break the circuit of the associated valve when its shoe is not on the conductor rail.

### Heating

Heating supplies are taken from the power bus lines in each car, the heaters being connected in groups of two in series. Back-up protection is provided by the main auxiliary fuses on the motor coach or the main heater fuses on the trailer and driving trailer should the crew heat or coach heat fuses fail to clear a severe fault. Passenger heating is selected by the guard by means of push-buttons in any van compartment and is thermostatically controlled, the thermostat relays and contactors in the trailers and driving trailers being carried in underframe equipment cases.

The coaches are being built in the British Railways works at Eastleigh and the motor bogies at Ashford. The complete electrical equipment for the trains has been supplied by the General Electric Co. Ltd. All are expected to be in service by September 1957.

**DEMONSTRATION OF JONES KL 10-10 CRANE.**—A demonstration of the Jones KL 10-10 fast travel mobile crane, was given on May 15 and 16 at the Leitchworth Works of the manufacturers, K. & L. Steel-founders & Engineers, Limited. The various movements such as derricking, hoisting, slewing, and travelling, were shown, both with and without load, depicting ease of control. In the case of the Jones KL 10-10 crane, the drive for all crane motions and also for high-speed road travel is taken from a Leyland single heavy-duty 125-h.p. diesel engine. The crane has a road speed unladen of 30 m.p.h. with a maximum climb on hard ground of 1 in 6.

**OBSERVATION CARS ON OBAN LINE AGAIN.**—For the first time since 1937, a special observation car will run this summer on Glasgow-Oban trains. This is the result of the successful introduction of one of these cars on the Fort William-Mallaig line last summer. From June 17 until September 30 the observation car will be attached every weekday to the rear of the 7.55 a.m. train from Glasgow Buchanan Street to Oban, returning on the rear of the 5.15 p.m. from Oban to Glasgow. The supplementary charge is 3s. 6d. per single journey, first or second class. An observation car will again run between Fort William and Mallaig this season, leaving Fort William at 10.24 a.m. and returning from Mallaig at 6.30 p.m. Seats in the cars on both services are reservable.



## RAILWAY NEWS SECTION

## PERSONAL

The British Electrical Development Association states that Viscount Chandos has been re-appointed President. Sir Josiah Eccles and Mr. Victor W. Dale have been appointed Vice-Presidents and Lord Beveridge and Captain J. M. Donaldson have been re-appointed Vice-Presidents. Mr. W. S. Lewis has been elected Chairman, and Mr. W. N. C. Clinch, Vice-Chairman, of the Council.

Mr. G. J. Evans, Assistant Registrar of the Canadian Pacific Railway, London, has retired after 45 years of service. He has been succeeded by Mr. A. L. Hodges.

Mr. R. L. E. Lawrence, Assistant (Passenger Services) to Chief Operating Superintendent, London Midland Region, British Railways, has been appointed Modernisation Assistant to Chief Operating Superintendent of that Region.

Mr. R. L. P. Cobb, E.R.D., Purchasing Officer, London Transport Executive, who, as recorded in our May 31 issue, has been appointed Stores Superintendent, Southern Region, British Railways, was educated at Sherborne. He joined the Southern Railway as a General Manager's Cadet in 1936 and received training in all departments. From 1939 to 1945 he served with the Royal Engineers Transportation Branch with the B.E.F., at home, and in India,



**Mr. J. W. Terry**  
Stores Superintendent, Southern Region,  
1950-57



**Mr. R. L. P. Cobb**  
Appointed Stores Superintendent,  
Southern Region

Mr. J. W. Terry, Stores Superintendent, Southern Region, British Railways, who, as recorded in our May 31 issue, is retiring, has completed 49 years of service. Mr. Terry, who began his career with the L.B.S.C.R. in 1908 as a junior clerk in the Storekeeper's Office at New Cross, was educated at Whitgift Middle School, Croydon. He volunteered for military service on the outbreak of the 1914-18 war, in which he gained a commission and was awarded the M.C. After the war, he returned to New Cross and, in 1923, was appointed to the Purchasing and, subsequently, to the Sales, Section of the Southern Railway at Waterloo. Mr. Terry became Chief of the Purchasing Section in 1940, Indoor Assistant to the Stores Superintendent in 1945, Assistant Stores Superintendent in 1947, and Acting Stores Superintendent in January, 1950, an appointment which was confirmed later that year.

Mr. G. W. Dean has been appointed a Director of the Rhondda Transport Co. Ltd.

Mr. Collingwood Cooper, Regional Establishment & Staff Officer, North Eastern Region, British Railways, retires tomorrow (June 8) after over 50 years railway service.

Alco Products Inc. has announced the appointment of Mr. Walter W. Perkins of Los Angeles as the company's exclusive agent in Southern California for Alcotwin finned tube heat exchangers and other longitudinal fin-tube products.

National Officers of the Institute of Traffic Administration elected for 1957-58 are:—  
**President:** Lord Merrivale.

**Vice-Presidents:** Messrs. R. P. Bowyer, A. Lawes Cole, L. C. Harrison, C. J. Parker, B. R. Miller, E. H. Burn, F. N. White, Tom Jackson, and J. Foley Egginton.

**Chairman of National Council:** T. J. D. Morris.

**Vice-Chairmen of Council:** Messrs. A. MacNair and A. T. Hills.

**Hon. Treasurer:** L. C. Harrison.

**Hon. Secretary:** C. R. Griffin.

attaining the rank of lieutenant colonel. On his return from the Forces in 1946 he was appointed Assistant to the Stores Superintendent, Southern Region, with responsibility for control of stores depots. In 1951 he was transferred to the Eastern & North Eastern Regions as Senior Assistant to the Stores Superintendent, in which capacity he was responsible for the purchase and control of general and civil engineering stores. In 1952 he was appointed Assistant to the Chief Supplies Officer, London Transport Executive, and was engaged on the negotiation of contracts for the purchase of road and rail rolling stock and other plant and equipment. Mr. Cobb was appointed Purchasing Officer of London Transport in 1955 and has since been responsible for the purchase of all stores and supplies.

Mr. E. S. Little has been elected a director of the British Thomson-Houston Export Co. Ltd. Mr. A. E. Wilson, Secretary of British Thomson-Houston Limited, has also



**Mr. G. E. R. Penney**

Appointed Assistant to Chief Operating Superintendent, Western Region



**Mr. H. W. Charles**

Appointed District Motive Power Superintendent, Grimesthorpe, Eastern Region



**Mr. J. H. M. True**

Appointed Traffic Manager, Tyne & Wear, North Eastern Region

been appointed Secretary of the B.T.-H. Export Company. Mr. H. G. McHaffie has been appointed Managing Director of the British Thomson-Houston Co. (Canada) Ltd.

Mr. G. E. R. Penney, who, as recorded in our May 31 issue, has been appointed Assistant to the Chief Operating Superintendent, Western Region, British Railways, entered the service of the Great Western Railway in the General Manager's Office at Paddington in July, 1923. Appointed as a travelling clerk in the office of the Superintendent of the Line in September, 1936, he became Junior Assistant to the Divisional Superintendent at Exeter in June, 1940. In October, 1941, he was appointed Chief Clerk to the Divisional Superintendent at Exeter and became Assistant Divisional Superintendent at Worcester in June the following year. In December, 1947, Mr. Penney was appointed Assistant Divisional Superintendent at Newport, and, in April last year, was seconded for a works study course on completion of which he became Assistant (Works Study) to the Chief Operating Superintendent, the position he now vacates.

Mr. H. W. Charles, M.I.Loco.E., Assistant District Motive Power Superintendent, Colwick, Eastern Region, British Railways, who, as recorded in our May 24 issue, has been appointed District Motive Power Superintendent, Grimesthorpe, began his railway career as a Premium Apprentice at Hull, on the former Hull & Barnsley Railway in 1916. After holding positions at Immingham and Stratford as a fitter he became Mechanical Chargeman at Palace Gates in 1929, and, in 1930, at Wood Street. Mr. Charles was appointed Workshop Foreman, Doncaster, in 1931, two years later becoming Assistant Foreman Fitter at Stratford. In 1936 he went to Stockport as Running Shed Foreman, and, in the following year, was appointed Technical Assistant, Liverpool Street. An appointment as Assistant District Locomotive Superintendent, Lincoln, followed in 1938 and he remained in this position until he was transferred to March in 1942 as Acting Locomotive Depot Superintendent while the holder of the appointment was serving in H.M. forces. Early

in 1946 he reverted to the position of Assistant District Locomotive Superintendent, Lincoln, until later in the same year he was appointed Locomotive Shedmaster, March. Mr. Charles became Locomotive Shedmaster, Doncaster, in 1947. In the following year, he was appointed Assistant District Motive Power Superintendent, Colwick, the position he now leaves.

Mr. J. H. M. True, who, as recorded in our May 24 issue, has been appointed Traffic Manager, Tyne & Wear, North Eastern Region, British Railways, with headquarters at Newcastle, began his railway career on the former London & North Eastern Railway in the Goods Commercial Department in 1925. He subsequently filled appointments at Newcastle Forth and New Bridge Street Stations, and in the Newcastle District Office. He later became a Traffic Apprentice and was transferred to the Mineral Manager's Office at Doncaster on completion of his training period. After service in the Royal Corps of Signals and Royal Engineers (Movement Control) during the 1939-45 war, Mr. True was appointed an Assistant Director of Transportation with the rank of Lieutenant-Colonel on demobilisation. After the war he returned to the Mineral Manager's Office at Doncaster as Chief Clerk and, in July, 1947, was appointed Goods Agent, Doncaster. In February, 1948, he became Assistant to the Executive Officer (Mineral Traffic), Railway Executive, and, in December, 1951, took up the position of Assistant to Commercial Superintendent (Coal), London Midland Region, Euston, becoming District Goods Manager at Newcastle, the position he now leaves, in October, 1955.

The second term of the Transport Users' Consultative Committee for the West Midland Area having expired, the Minister of Transport and Civil Aviation, the Rt. Hon. Harold Watkinson, M.P., has appointed the undermentioned persons to be members of the new Committee for the West Midland Area until April 30, 1959.

**Chairman**

Major C. R. Dibben, C.B.E.

**Members**

Messrs. R. B. Darby,\* J. C. Beckett\* (representing Agriculture); Messrs. F. D.

Scott Walker, R. H. Smith, A. H. Johnson, H. W. Davies (Representing Industry); Councillor J. Delicate (Representing Commerce); Mr. D. G. E. Clark\* (Representing Shipping); Messrs. L. V. Pike, A. J. Pratt, J.P. (Representing Labour); County Councillor Colonel E. C. L. Bearcroft, County Alderman F. G. Edwards\*, Councillor A. B. Bailey, J.P.\*, Alderman A. M. Silcox, Alderman G. C. W. Jones, J.P.\* (Representing Local Authorities); Messrs. C. N. Christensen, D. S. Hart\* (Representing the British Transport Commission); Mrs. E. Bayliss, J.P., Sir Philip Magnus-Alcroft, Bart. (Additional Members).

**Secretary**

Mr. N. W. Platt.

\* Indicates new member

The following staff changes are announced by the London Midland Region of British Railways:—

Mr. G. S. Garbert to be Assistant (Sales), Chief Commercial Manager's Office, Euston.

Mr. J. Bellamy to be Assistant District Operating Superintendent, Birmingham (Midland).

Mr. J. Wright to be Signalling Assistant, Signal Engineer's Department, Euston.

Mr. N. J. Cooper to be Assistant District Goods Manager (Sales), Warrington.

Mr. W. H. Hardy to be Assistant to District Goods Manager (Operating), Liverpool.

Mr. L. Knight to be Assistant to District Commercial Manager (Goods Commercial), Leicester.

Mr. R. Meads to be Work Study Engineer, C.M. & E.E. Department, Derby.

Mr. A. H. S. Coutts to be Mining Assistant, Chief Civil Engineer's Department, Derby.

Mr. T. Vickers to be Assistant District Motive Power Superintendent, Crewe.

Mr. G. O. B. Clarke to be Assistant District Motive Power Superintendent, Edge Hill.

Mr. J. W. Peet to be Assistant District Motive Power Superintendent, Accrington.

Mr. C. L. Kelly to be Assistant District Motive Power Superintendent, Carnforth.

Mr. J. W. Craig to be Stationmaster, Manchester (Central).

Mr. G. Foster to be Assistant for Foundry Mechanisation, Horwich.

Mr. S. H. Walton to be Goods Agent, Salford.

## NEW EQUIPMENT AND PROCESSES

### Compact Loading Shovel

**A** MANŒUVRABLE and compact loading shovel of 10 cwt. lifting capacity, suitable for a variety of uses in works and depots, such as coaling boiler plant, and ash or scrap handling duties, is the S.1 Weatherill Hydraulic Industrial Loader.

The unit is 4 ft. 6 in. wide and has a wheel base of 4 ft. 9 in. and can be operated under ceiling height of 6 ft. 3 in. It is stated to have a good forward reach with a discharge height that is adequate to load tippers and other trucks of usual type, besides low-sided rail wagons.

A range of scoops is available to accommodate the handling of a wide variety of materials; each scoop varies in size to ensure that the machine's full loading capacity is maintained whatever the substance being dealt with.

An offset seating arrangement is provided which, with a single boom arrangement, avoids the necessity of seating the driver between moving parts, adding to the operator's confidence when handling this machine in confined working spaces, or when fast work is necessary. Specialised versions of the basic design can be supplied to meet the individual requirements of users where necessary.

The S.1 loader is fitted with a Perkins P.3 28-b.h.p. diesel engine driving through an 11-in. dia. single dry plate clutch; 10-in.  $\times$  1½-in. hydraulic brakes act on the driving wheels. Tyre sizes are: steering wheel, 18  $\times$  7; driving wheel, 7.50  $\times$  16 water ballasted.

Optional equipment comprising a crane attachment, fork lift towing hitch and lighting is also available.

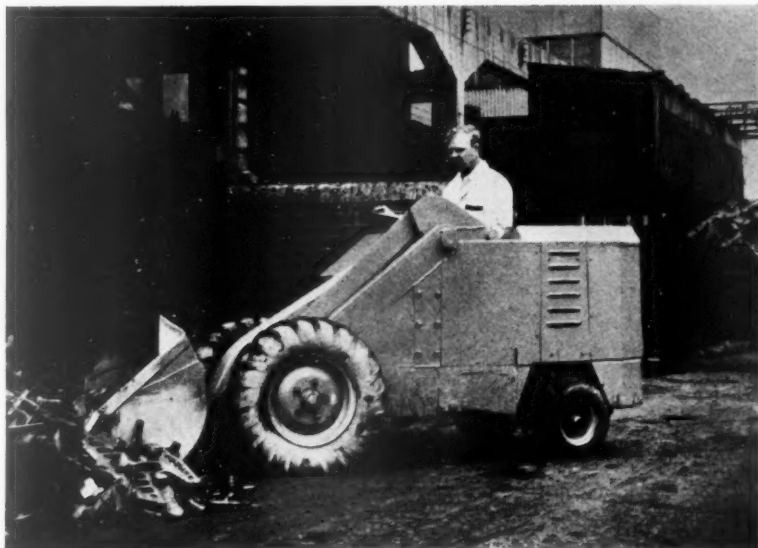
The standard S.1 loader can be delivered in about six weeks. Full details, including price, may be obtained from the manufacturer, F. E. Weatherill Limited, Tewin Road, Welwyn Garden City, Herts.

### Frictionally Controlled Buffer Stop

**A** FORM of buffer stop, the Rawie, which by application of the principles of frictional resistance affords a gradual stop, without impact and consequent possible damage to vehicles or their loads, is stated to be now standard for the German Federal Railway, on which ordinary fixed stops are only used for the less important sidings. When one of the stops is struck and driven forward, it is hauled back to its original position, after adjusting the frictional retarding components to permit this; they are then re-set to give its correct full retarding effect.

Only one case is reported of damage to the vehicles of a train running into a Rawie stop, and this was the result of failure to equip the road concerned with the range of stop appropriate to the weight and speed of the traffic normally using the line.

Several ranges of Rawie equipment are available, varying from that with a simple frictional rail grip to a stop depending on the sliding action of sleepers on a suitable form of surface, with varying distances of travel to meet local requirements.



It is possible, therefore, to cater for sidings where at most a few vehicles or short trains have to be accommodated, and for station or yard terminal lines into which the heaviest passenger or freight trains are received.

The London representative of the manufacturer, A. Rawie K.G., of Osnabrück, is Dr. E. Székely, Flat 3, 34, Elm Park Gardens, London, S.W.10, who will supply details on application.

### Synthetic Rubber Floor Paint

**GLOCRETE SR.**, stated to be the first synthetic rubber floor covering material available in this country, is of use in preventing the formation of dust from, for example, concrete floors, giving a non-skid surface, and is available in a range

of colours to match surrounding colour schemes. Of application to workshops, maintenance depots and so on, the product can cover floors made from a wide range of materials, including concrete, wood, brick, tiles, and tarmac.

The material, which can be applied to a floor surface with a wide brush or broom, dries in 30 min. and can take light traffic after 10 hr. hardening off. It has a flash point of 110° F.; the finished coating does not promote combustion.

Even on non-adhesive surfaces, which are normally impossible to stick to, because of oils, petrols or tool cutting fluids, a coat of Glocrete Sealer will adhere and enable badly damaged floor surfaces to be repaired.

Full details of the products including price and delivery may be obtained from the manufacturer, Corrosion Limited, Malvern Road, Southampton.





## Expanding Production of Railway Signalling Materials

*Steps to increase planning and manufacturing capacity*



*A general view of part of the new factory space now available for relay production*

To cope with the complete signalling installations now being called for under the modernisation programme of British Railways, along with important and growing export business, the Siemens & General Electric Railway Signal Co. Ltd., premises at Wembley have been considerably extended. It has been necessary to find accommodation for a considerable increase in personnel engaged on planning railway signalling schemes as well as installation work.

At the same time, the Commercial Department staff has had to be built up to match that of the engineering side. The rehabilitation of all departments in the original Wembley building is now virtually complete, and on Friday last a group of Signal Engineers from the British Transport Commission and the Regions of British Railways visited the works to see the additions and improvements which had recently taken place.

Apart from these extensions, the visitors were also shown further factory space which is now available a short distance from the Wembley offices. In this factory the pressing need for relays of every description is already being met and the planned capacity includes production of 500 relays a week. Within the course of the next few months a range of heavier equipment will also be manufactured in this works.

### Additional Capacity

The increased ability of the company to estimate, engineer and install railway signalling equipment, coupled with the demands of the export market, had made imperative additional manufacturing capacity. The new factory space now available, together with the modern equipment and processes being used, should provide the capacity for dealing with the British Trans-

port Commission's requirements without any interference with the important volume of export business.

During the visit two types of control panels were on view in a demonstration of modern relay interlocking control. The first of these was the S.G.E. single key route setting system where one key is used for the control of each route. Keys controlling several routes from one signal are placed vertically one below the other and numbered. Otherwise the keys are placed in numerical order along the keyboard.

### Signal Indications

Signal aspect indications are displayed immediately above their respective keys. Emergency control keys for the points may be placed in any convenient position on the key table. Points indications showing 'N' or 'R' and points 'locked' or 'free' may be placed above the point keys, and may be arranged to flash during transit as required. Above and behind the key panel is the track diagram complete with track circuit indications.

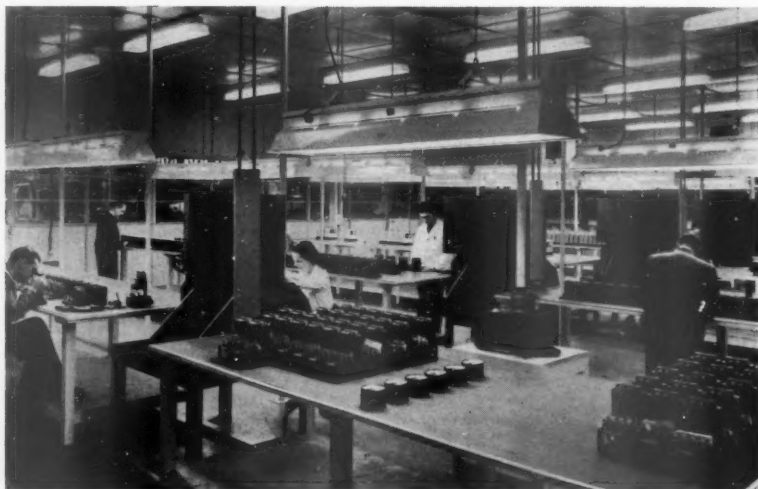
In addition to the foregoing, another method of indicating the points position is shown. This points indicator may replace those already mentioned fixed above the emergency points keys, in which case either the 'N' or 'R' position is normally alight and may flash during transit as required; alternatively, these indicators may be normally out and alight only when a route has to be set and so indicate the direction of that particular route.

### S.G.E. Two Key System

The second system shown was the S.G.E. two key system, which demonstrates the use of a turn key at the beginning of a route or routes and a push key at the leaving end. With this system all keys and indications are mounted on the track diagram. All indications as mentioned under the single key system may be used. Push keys at the leaving end, when pushed to complete a route set up, may be lit and remain so until the train has gone. Circuits



*Relay test set in operation*



*Part of the relay test room recently brought into use*

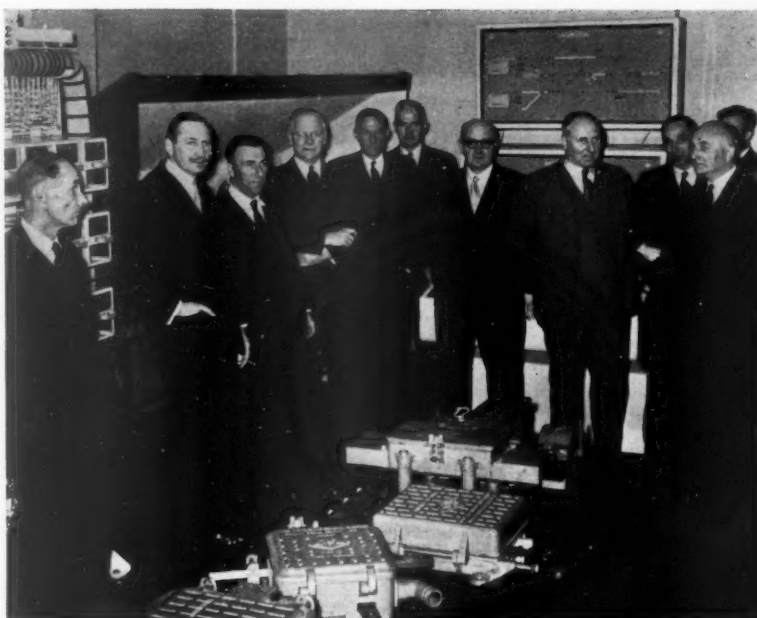
to prevent the preselection of route setting may be arranged as desired.

The operation of either system is based on the use of S.G.E. Type CG interlocking relays, one such relay being used for each route to be set up; a similar relay is used for the control of each pair of points.

Panels are of Waverite with the diagram and all lettering bonded into the material so having an indefinite length of life with normal conditions of usage. Large panels are built in sections which may be removed and replaced when alterations are necessary. A feature of the designs in both the cases mentioned is ease of maintenance.

Among those visiting the Works were Mr. E. G. Brentnall (Assistant Chief Signal Engineering Officer, British Transport Commission), Mr. L. J. Boucher (Signal Engineer, Southern Region, British Railways), Mr. C. G. Derbyshire (Assistant Signal Engineer (Modernisation), London Midland Region), Mr. R. A. Green (Signal Engineer, Eastern Region), Mr. A. F. Wigram (Signal Engineer, North Eastern Region), and Mr. A. W. Woodbridge (Signal Engineer, Western Region).

The visitors were received by Mr. F. L. Castle, Managing Director of Siemens & General Electric Railway Signal Co. Ltd.; Mr. T. Austin, Chief Engineer; Mr. J. Sulston, Signal Engineer; Mr. H. J. N. Riddle, Development Engineer; Mr. F. G. Mitchell, Commercial Manager; Mr. L. W. H. Lowther, Sales Engineer, and Mr. H. G. Cheel, Works Manager.



During the visit on May 31: (left to right) Messrs. L. W. H. Lowther, R. A. Green, L. J. Boucher, F. L. Castle, A. F. Wigram, C. G. Derbyshire, E. G. Brentnall, A. W. Woodbridge, J. Sulston, and B. W. C. Cooke

## Indian State Railways Dinner

*Mr. L. T. Madnani on achievements under the Five Year Plans, and difficulties overcome*

The annual reunion and dinner of the Indian State Railways (India and Pakistan) was held at the Rembrandt Rooms, London, S.W.7, on June 3. The chair was taken by Lt.-Colonel R. D. T. Alexander, a former General Manager of the Bengal Nagpur Railway. Some 190 persons attended.

Colonel Alexander, after proposing the Loyal Toast, mentioned those who had passed away since last year's reunion; Messrs. A. C. Austin, A. P. S. Bell, N. Carroll, F. T. Castells, Sir Harold Colam, Messrs. H. Howe, N. C. McLeod, A. H. Marley, W. B. Purkis. He then introduced the principal speaker, Mr. L. T. Madnani, Railway Adviser to the High Commissioner for India.

Mr. Madnani said that though he was to speak on the railways of India, he wished all success to those of Pakistan. The gathering that evening was unique, as being of men who, after contributing so much to the efficiency and initiating such good traditions of Indian railway, continued to take a likely interest in their progress. Serving railway officers in India, he added, took great interest in the Indian State Railway dinner in London.

He went on to outline the scope for railway development in the Republic of India under the First and Second Five-Year Plans. As a prelude to electrification, it was intended to use diesel traction whenever the density of traffic justified this form of traction.

### Achievements

As to what had been achieved, he stated that the figure of net-ton-miles per wagon-day had increased on the broad gauge from 434 to 541 and on the metre from 186 to

203 during the First Plan period. A great deal had also been done for passenger travel: many coaches had been placed in service, and the standard of travel comfort was improving, as was shown in the new air conditioned expresses conveying third class passengers.

### Difficulties Faced

There was, he continued, a shortage of raw materials such as steel, cement, and even timber. For the many thousands of items required by the railways, demands for almost all were increasing. The railways' purchases were expected to be doubled by the end of the Second Plan as compared with earlier period of the First Plan. These rising demands had to be met as far as possible within the country, and much of them by imports.

There was also the problem of training men to take up positions at different levels, and that of finding finance and foreign exchange for the execution of the projects. These problems were being handled very carefully and with the sympathetic co-operation of all concerned.

### Locomotive Building

As an instance of what had been achieved, Mr. Madnani mentioned Chittaranjan Locomotive Works. These were now turning out 14 broad-gauge steam locomotives a month, and had completed over 500 since November 1, 1950. Yet work on the Chittaranjan project had started only in March, 1948, and many obstacles had had to be overcome—even to the extent of facing the possibility (which never materialised, however) of erecting locomotives in the open, using steam cranes. Mr. Madnani described the

initial difficulties, and also the co-operation received from the Locomotive Manufacturers' Association and other quarters in Britain notably in training staff.

The establishment of Chittaranjan Works and bringing it into production, he stated, required the spirit with which India was going ahead with its Second Five-Year Plan.

They wanted more food for their millions, more fertilisers, steel, cement, and consumer goods. The railways were doing their utmost. Mr. Madnani then proposed the toast of "The railways of India and Pakistan."

The chairman, in a final speech, expressed thanks to Mr. Madnani for his interesting and comprehensive review of railway developments, and to Mr. N. D. Calder for his great industry and efficiency as Hon. Secretary of the reunion. He also stated how pleased they were to welcome at the dinner that evening a number of serving officers from India.

Those present were:—

**Bengal Assam:** Messrs. J. H. Bavin, G. S. Bocquet, N. D. Calder, J. Hannah, K. E. Leaver, G. R. L. Malet, F. E. Musgrave, J. N. E. Nagle, W. R. Pearce, L. V. Pont, H. M. Read, F. A. Smith, A. T. Stephens.

**Bombay, Baroda & Central India:** Messrs. C. H. P. Allen, E. C. Armitage, W. Blake, J. S. Bearcroft, C. G. Cotesworth, E. Gardner, H. C. Harris, J. N. A. James, G. de P. Leeper, K. T. Lomas, W. R. Maunders, J. W. Maye, B. H. Mayes, K. P. Mushran, A. B. Rogers, G. T. Simpson, H. C. Towers, J. S. Tritton, H. H. Wenmoth, Lt.-Colonel F. Moseley, Mr. I. L. Butterfield.

**Bengal Nagpur:** Lt.-Colonel R. D. T. Alexander, Messrs. S. W. Bailey, M. N. Bery, W. J. Coode, H. V. Corks, P. S. Cross, V. A. de la Nougere, A. F. Desellas, W. H. C. Kelland, The Revd. A. C. B. Molony, Messrs. A. K. Southern, A. F. Tabraham, D. C. W. Tonkin.

**Burma:** Mr. J. D. Lewis,

**East Indian:** Messrs. F. C. Badhwar, E. P.

Blake, C. N. Burns, J. M. Fenton, E. R. Fleeton, A. Gemmell, J. C. Gibson, R. G. Goodman, J. R. Hemsley, J. Holt, T. T. Lambe, L. T. Madhani, Sir Robert Marriott, Messrs. F. G. S. Martin, R. S. Oakley, H. W. Puttick, G. W. N. Rose, H. D. Singh, B. G. Smith, M. Srinivasan, G. Waugh, G. W. Browne.

*Great Indian Peninsula:* Messrs. H. H. C. Barton, A. J. Bayross, E. H. Blanchard, Sir R. B. Emerson, Messrs. E. L. Ensor, A. G. T. Glaisby, R. J. Harris, H. Rideau, H. R. Rishworth, C. H. H. Robertson, Sir L. Wilson, Messrs. E. S. Woolridge, J. M. D. Wrench, J. B. Remington, Colonel E. Colvin.

*Jodhpur:* Messrs. J. P. Bardsley, D. A. Phillips, K. Cantlie.

*Madras & Southern Mahratta:* Mr. S. M. Anwyl, Sir Godfrey Armstrong, Messrs. G. S. Baldrey, V. J. Crow, E. G. Cullen, H. Edwards, J. S. Fiddes, G. H. Ford, W. G. Latham, R. de K. Maynard, S. B. Mazumdar, G. S. Molle, Dr. H. J. More, Messrs. P. Morris, E. Perfect, A. C. Read, C. G. Reynolds, O. St. Clair Sarkies, B. A. Spencer, B. J. Tapner, D. O. Thomas, W. E. Marsh.

*North Western:* Messrs. L. G. Asquith, A. R. Barber, W. S. Benton, P. S. A. Berridge, G. P. Bhalla, E. V. Coello, F. A. Coello, H. Hinton Cooper, G. A. Dyke, G. J. Eades, A. G. Englefield, G. P. M. Fitzgerald, E. P. Gildea, C. E. Goldsmith, Sir Arthur Griffin, Messrs. D. M. Hambly, J. C. Highet, H. W. Huggins, T. H. B. Jones, S. L. Kumar, E. L. Manico, B. Moody, J. W. Ogle, R. H. Paterson, A. A. Phillips, W. C. Phillips, V. J. Reynolds, A. O. Roberts, E. B. Robey, A. R. Sarin, Colonel J. R. Simpson, Mr. A. M. Sims, Lt.-Colonel W. J. W. Sorby, Messrs. H. C. Stanley Bennett, W. G. Stephens, W. Strang, G. M. Tappin, E. B. N. Taylor, R. O. C. Thomson, N. C. Watney, F. M. G. Wheeler, C. E. Williams, Brigadier A. E. Woodhouse, Messrs. J. Wyse, J. S. F. Yates.

*Oudh & Tirhut:* Messrs. W. D. Craig, N. C. Deb, J. V. Elson, R. H. Henry, H. E. Hypher, Sir J. R. Izat, Messrs. F. G. Levingston, W. Miller, R. D. B. Robathan, G. A. Rowlerston, G. A. Summers, H. A. Summers, H. C. W. Westwood.

*South Indian:* Messrs. C. E. Gayes, J. J. Harding, H. C. Hodgson, J. Hutcheson, A. I. W. Jones, E. C. Lightbody, D. A. Locke, C. R. Martingell, L. N. Mathur, G. W. O. Moore, E. la V. Parisot, P. G. C. Peyton, H. A. Reid, J. Trestrick, V. R. Riley, A. Vieyra, J. F. Wright.

*Guests:* Sir William Stanier, Mr. P. H. S. Drew.

## Expansion of the Phosphor Bronze Co. Ltd.

The opening of the expanded administration block of the Phosphor Bronze Co. Ltd., Bradford Street, Birmingham, 5, a member of Birfield Industries Limited, took place on May 30. Prayers were said by the Suffragan Bishop of Aston, the Rt. Reverend C. G. Michael Parker. Mr. C. G. T. Hyslop and Mr. A. N. Wormleighton, Chairman and Managing Director respectively of the Phosphor Bronze Co. Ltd., represented the company.

The main influence on the planning of the buildings was the need for increased production and administrative services, and to this end much of the equipment, such as fuel, and other stores have either been placed underground, or above floor level.

### Flexibility

The works cloakrooms and showers are on the first floor, as are the mould making, and pattern shops, while the offices and canteens are on the second, third, and

fourth floors. To aid flexibility of production and the movement of traffic, obstructions were removed where possible. To reduce internal transport costs, sand floors in the foundry have been replaced by concrete. Complete modern standards of amenities also have been provided. Office accommodation is built in four tiers, and on the ground floor sufficient space is taken up for lifts and the staircase to the Managing Director's office, which has direct access to the foundry, while staff cloakrooms and time-keeping arrangements are placed on a mezzanine floor leading to the production offices. Future expansion has been catered for adequately by the purchase of property on the other side of the river Rea.

Mr. A. N. Wormleighton, in a speech after the luncheon, referred to the alterations made, and to the importance of facilities and training of all grades of staff.

A tour of the foundry was arranged where visitors saw production of many different components, and the variety of articles cast, which included bearings of

phosphor bronze for British and other railways overseas, also locomotive coupling rod bearing, vacuum brake ejectors, and other equipment for the Vacuum Brake Co. Ltd., a member of the Birfield Group. The members also visited the machine shop and extensions, in which were installed Ward turret lathes, Webster Bennett boring mills, and Parkson millers.

### Residential Centre

A visit was also paid to Goldecote House, Stratford-on-Avon, the residential industrial education centre of the Birfield group. The principal activity is the running of residential conferences. The executive committee responsible for co-ordinating the group education and training policy is the Birfield Training Officers' Committee, consisting of the education or personnel officer of each company, with the Chief Education Officer as Chairman. Detailed schemes are drawn up either for co-ordinating activities within the separate companies in the group or for operation on a Group basis.

## Transport Tribunal Fares Inquiry

*Application by B.T.C. for authority to raise passenger fares*

The hearing before the Transport Tribunal of the application by the British Transport Commission for authority to increase passenger fares on British Railways and London Transport began in London on May 29. Mr. Hubert Hull presided. There are 41 objectors, most of them public authorities, headed by the London County Council.

### Possible £75,000,000 Deficit

Mr. E. S. Fay, Q.C., presented the case for the Commission.

The outlook for British Railways as a whole next year was a deficit of £75,000,000, he stated. Increases in costs of that order clearly called for remedial and speedy measures.

The B.T.C. had come back to the Tribunal asking for enlarged charging powers because it had again been overtaken by substantial increases in expenditure. Operations on London Transport had attracted since last year a gross increase in expenses of £4,300,000 a year. That could be offset by £700,000 a year savings and increases in receipts over what had been anticipated in last year's estimates. The net worsening in the estimates was £3,600,000.

### Increased Expenses

British Railways as a whole had suffered an increase of expenses totalling £25,000,000 a year. For next year they expected a working deficit of £35,000,000, but to arrive at the actual prospective deficit one had to add the contribution to central charges, about £40,000,000.

Temporary relief had been afforded in the finances of British Railways and London Transport, he went on, by the consequences of the Suez crisis, but this afforded no long-term relief at all.

The management of British Railways had, within the framework of the scheme, some headroom on the ordinary fares. The present scheme did not propose to alter that headroom. At present there was no headroom on the maximum permitted for early morning fares and season ticket rates. To increase those maxima would have the effect of affording British Railways a headroom with early morning and season tickets

comparable with the headroom they had in ordinary fares.

No decision had been taken to increase British Railways fares outside London. The timing of any increases which might have to be made is regarded as a managerial decision depending upon a number of factors, such as the impact of the holiday season and the general level of passenger traffic. The Commission would review the position in July. No general use, either of the existing powers to increase fares or the powers the Commission was now seeking was likely to be made before next September.

The expected yield from the fare increases on London Transport was £4,500,000. This was £900,000 more than the expected deficit of £3,600,000 if no increased charges were made.

For London Transport it was proposed to increase the one-mile fare from 2½d. to 3d. This had the effect of making the "Suez halfpenny" at present temporarily in force a permanent part of the structure. The two-mile ordinary fare would rise from 4d. to 5d. and other ordinary fares would be raised by 1d.

Early morning fares and season tickets would be raised on British Railways and London Transport systems.

The Commission's financial results for 1956, Mr. Fay disclosed, were expected to be laid before Parliament about June 24.

After evidence was given on May 30 by the B.T.C. on its application for powers to increase fares on British Railways and London Transport had been completed, the Tribunal adjourned to enable the 41 objectors to study the Commission case. The proceedings will not be resumed before June 17.

### Early Morning Rates

Mr. B. H. Harbour, Member of London Transport Executive, said on May 30 that the Tilbury Line fares would be increased in the same way as London Transport ordinary fares, but it was not proposed to introduce on these lines a 4d. fare for a one-and-half-mile journey.

It was the Commission policy to move progressively towards the elimination of



early morning fares. "We regard early morning fares as anachronistic in the present social conditions," he said. Under the present fare increase proposals inroads had been made into the early morning rates for four to eight miles and into the longer distances "where the rates in our opinion are quite unrealistically low."

Mr. Ernest Arthur Dixon, for British Railways, explained proposals to increase the authorised maximum of early morning and season tickets to correspond to those in London. He said that the authorised maximum for British Railways ordinary fares was 2d. a mile (second class). The general level of ordinary fares at the moment was 1.88d. a mile, and it was not proposed to increase this for the time being. The whole position of railway fares outside London was under review.

## Production of Lister Air-Cooled Diesel Engines

The manufacture of air-cooled diesel engines at the company's Wroughton Works (near Swindon), and examples of the variety of applications of the whole range of units built by R. A. Lister & Co. Ltd., were among items of interest seen during an official visit of the technical Press to the Bath & West Show, Swindon, on May 30.

At the show itself, a large exhibit of industrial machinery contained plant from some sixty firms covering a wide field of engineering both home and overseas—each product, which included mobile cranes, generating sets, and small locomotives was powered by an engine of the company's manufacture.

An independent power house, supplying the requirements of the show was also visited. Here, two 400 kVa. generating sets with Lister Blackstone ERS8 engines are located as well as a dual-fuel EYDF6 type engine which at 600 r.p.m. gives 220 b.h.p. (150 kW.) on town gas obtained from the town gas supply, and 270 b.h.p. on diesel fuel, attracted attention.

### Wroughton Works

The party was then conveyed to the company's works at Wroughton which is now the centre of production of the Lister LD air-cooled diesel engine, which is being made in two sizes—single and twin cylinder units of 3½ and 7 b.h.p. respectively. The factory which was originally built by the Admiralty during the second world war covers an area of approximately seven acres; it consists of one main assembly shop, administrative block and several secondary shops and store-rooms, which cover some 3½ acres; and 400 personnel are employed.

### Intensive Production

Since 1946, the company has concentrated its small-engine production at this centre, and installed plant capable of producing over 1,000 petrol engines each week.

In 1954, the plant was adapted, with only the minimum of re-tooling, to produce an entirely new engine, the LD 1.

Total weekly production, at Wroughton which includes some D-type petrol engines, the first production model at the works, is 450-500 units.

Exports of the engines amount to some 80 to 85 per cent of total production, indicating the faith which the company has placed in the future of the small, robust, air-cooled diesel unit.

## New Signalbox at Denbigh

A 70-lever signalbox has been brought into use at Denbigh, London Midland Region, replacing three former boxes and operating a remodelled permanent way layout. The box is of standard modern design with electric lighting and gas-fired automatic central heating, and cooking, washing, and toilet facilities.

Denbigh, forming the junction of the lines from Rhyl and Chester to Corwen, was originally worked by Denbigh No. 1 box just north of the station; by Denbigh No. 2, south of the station; and by the Mold & Denbigh Junction box. There was a double line running north from Corwen which divided at the junction, continuing as a single line to Rhyl and a double line to Chester. Under the re-signalling and remodelling scheme, the line to Chester was single tracked as far as Bodfari. Thus, two separate single lines run into the station from the north and are joined into one single line before reaching Ruthin in the south.

With the remodelling of the track layout, Denbigh was completely track circuited and resignalled. Eighteen full-size semaphore signals, nine new disc-pattern ground signals, and twelve track circuits have been installed. All the track circuits are indicated electrically on an illuminated diagram. Five new signals have been provided at Bodfari together with one track circuit. Electric token working has been provided as follows: from Denbigh to Ruthin and Denbigh to Bodfari by key token apparatus; and from Denbigh to Rhyl by miniature staff apparatus.

The territory controlled by the new box is 1½ miles between outermost signals and simultaneous acceptance of trains from all three single lines served has been provided by the installation of outer home signals with electric token controls on each line.

## Notting Hill Gate Reconstruction

Good progress is being made with the £1 million reconstruction scheme at Notting Hill Gate to link the London Transport Circle and Central Line stations into one underground station. More than 100 men are working night and day shifts. Using pneumatic spades, miners are cutting out 27,000 tons of hard blue London clay as they drive tunnels for the escalators. The main pilot tunnel has now been driven to a point 85 ft. under the street. This tunnel is now being enlarged to the full escalator size of 22-29 ft.

The new station will be completed in the summer of 1960, but London Transport is to bring it into partial use in two earlier stages. In March of next year the new booking hall beneath the road will be opened for Circle Line passengers. In the spring of 1959 two of the three new escalators will be finished so that Central Line passengers can also use the booking hall, and the old tube station will be closed. In the final stage the third and lowest escalator leading to the eastbound Central Line platform 100 ft. below ground will be brought into use in July, 1960.

Notting Hill Gate is London Transport's biggest station rebuilding job on the Underground since the war. When it is completed the London County Council road-widening scheme to remove the bottleneck at Notting Hill Gate—London's

busiest main road used by 32,000 vehicles daily—will be able to go forward. At the moment more than 2,000,000 Underground passengers a year have to come up to street level and cross the junction to interchange between the Circle and Central Line stations, which are on opposite sides of the road.

A new booking hall to serve both Circle and Central Lines is being built below road level. It will be 50 ft. long and reached from four pavement entrances. Three flights of escalators will go down 100 ft. to link the booking hall with the Central Line platforms and there will be an interchange passage leading to the Circle trains at the first landing level. People changing from one line to another will therefore not need to come up to the street, as at present.

The present station buildings on either side of Notting Hill Gate are to be pulled down and the new station will be completely below ground. The old Central Line lifts, which have been in use since the line was opened 57 years ago as the "tuppenny tube," will also go.

The consulting engineers for the station reconstruction scheme are Messrs. Mott Hay & Anderson and the contractors are Balfour, Beatty Limited.

## Handing-over First British Railways Type "A" Diesel

The ceremony of handing over the first Type "A" main-line diesel electric locomotive which took place at the Vulcan Foundry Works, Newton-le-Willows, last Monday, as mentioned elsewhere in this issue, was attended by some 80 guests.

Sir George Nelson, Chairman of the English Electric group of companies formally presented the unit to Lord Rusholme, Member, British Transport Commission and Chairman, London Midland Area Board: the locomotive is described on page 649 and is the subject of editorial comment on page 643.

Those present included:—

Sayed El Amin Mohammed Aly, Messrs. E. D. Andrews, E. H. Baker, D. S. M. Barrie, E. S. Bingham, M. R. Bonavia, W. K. Brasher, J. A. Broughall, D. C. Brown, E. R. Brown, H. L. Brown, K. Butler, T. C. Byrom

Messrs. A. Campbell, C. R. Campbell, S. T. Clayton, C. M. Cock, G. Collingwood, K. J. Cook, E. S. Cox, W. G. Cross, G. R. Curry, R. H. Dobson, B. Donkin, F. O. Ellis, A. P. Evans

Messrs. A. L. Fielding, I. C. Forsyth, C. R. L. Gibson, E. B. Gilbert, A. H. Greenham, J. N. Gresham, A. M. Grier, N. J. D. Hammond, J. F. Harrison, M. S. Hatchell, J. Haworth, S. G. Hearn

Messrs. T. H. Hollingsworth, W. A. Horrocks, J. T. Hudson, C. C. Inglis, M. Y. Khan, H. E. Kemp, S. E. Lord, W. H. Maass, R. F. Marriott, J. F. McCormick

Messrs. J. P. Metcalfe, R. Metcalfe, B. Michalak, C. P. Millard, T. C. B. Miller, D. J. Muir, J. Nadin, O. S. Naylor, Sir George Nelson, Messrs. H. G. Nelson, S. J. Olivier, E. C. Ottaway, F. H. Petty

Messrs. F. A. Pope, G. Rigby, Don Jorge Suarez Rivas, Mr. G. Roberts, Lord Rusholme, Messrs. H. Sammons, J. S. Scott, T. F. B. Simpson, H. S. Smyth, Ali Soheily, J. C. Spark, W. J. Sproson

Messrs. D. P. Taylor, W. L. Topham, J. S. Tritton, Dr. Justo Garcia Velez, Messrs. C. C. H. Wade, W. J. Wakley, Maj. Gen. Li Wansbrough-Jones, Messrs. S. B. Warder, J. W. Watkins, Wladyslaw Zawidzki, M. Zelli.

## Staff and Labour Matters

### Conference on Prices and Productivity

On June 3 the Chancellor of the Exchequer Mr. Peter Thorneycroft, and the Minister of Labour, Mr. Iain Macleod, met representatives of employers' organisations for preliminary talks on price stability, productivity, and the standard of living.

The employers' organisations were the Federation of British Industries and the British Employers' Confederation and further talks took place later in the week with representatives of the nationalised industries and the Trades Union Congress.

### Shipyard Workers' Pay

After prolonged discussions on June 3, the shipbuilding employers and the trade unions failed to reach a settlement on the claim for improved rates of pay for shipyard workers. The talks were adjourned until June 11.

## Parliamentary Notes

### Railway Cattle Traffic

Mr. John Hill (Norfolk S.—C.) asked the Minister of Transport & Civil Aviation on May 15 what steps he was taking to implement the recommendations of the Committee of Inquiry into the Export of Live Cattle, so far as those related to matters within his responsibility.

Mr. Harold Watkinson: I would refer Mr. Hill to the statement made by the Minister of Agriculture, Fisheries, & Food on May 8. The B.T.C. has already announced that it is giving immediate consideration to the recommendations in the report which concerns British Railways.

Mr. T. Williams (Don Valley—Lab.), former Minister of Agriculture: Will the Minister press British Railways very hard, since, according to this report, the chances are that there is much more cruelty during railway transport in this country than on the Continent?

Mr. Heathcoat Amory, Minister of Agriculture, Fisheries & Food, said that, on the whole, British Railways came extremely well out of this Report, and that the evidence was that they take a great deal of trouble to see that there is no avoidable discomfort to animals during transit. There was the question particularly of the size of British wagons and the method of charging. He would have consultations with British Railways on both those points and he believed British Railways were extremely anxious to be helpful.

## Questions in Parliament

### Driverless Train Incident

Mr. R. Chichester-Clark (Londonderry—U.U.) asked the Under-Secretary of State for Commonwealth Relations on May 7 what protest he made to the Irish Republican Government at the time of an incident in which a train seized in the Republic of Ireland was subsequently directed, driverless, into Londonderry Station, constituting a danger to life and causing thousands of pounds worth of damage to property; and what communication he has subsequently held with that Government.

Mr. C. M. Alport: The United Kingdom Ambassador in Dublin made a formal protest to the Irish Republican Department of External Affairs on March 4. No subsequent communication has been held with the Government of the Irish Republic on this matter.

## Contracts and Tenders

### Refrigerator wagons for New Zealand Government Railways

Metropolitan-Cammell Carriage & Wagon Co. Ltd. has received an order for 100 refrigerator wagons from the New Zealand Government Railways.

Alco Products, Inc. of New York, have received orders from India, Pakistan, and Argentina for railway equipment to the value of \$56,000,000 (£20,000,000).

British Railways, London Midland Region, have placed an order with the Ailsa Shipbuilding Company of Troon, Ayrshire, for a 1,500-ton motor vessel to convey cargo, cattle and horses on the Irish services. The new vessel will be 310-ft. long, 45-ft. wide, with 2,800-b.h.p. diesel engines, and a speed of 14 knots, and will cost about £520,000.

British Railways, London Midland Region, have placed an order with the Atlas Engineering Company, London, S.W.7, for the supply of two Atlas standard wheel profile truing machines for delivery to the new diesel motive power depot at Crewe, and the other for Reddish. An order has also been placed by the Commonwealth of Australia Railways for one of these machines for Port Augusta.

British Railways, London Midland Region, have placed the following contracts:—

Wm. Herd & Co. Ltd., London, W.1: lump-sum contract labour only, cleaning and painting north span roof over platforms 1—6, Liverpool Lime Street

A. J. Binns Limited, London, N.1: 1957 fencing programme, London district

E. Brown & Son Ltd., Wellingborough: accommodation, Midland Road Station, Bedford

E. B. Jones & Rawlinson Limited, Salford, 6: improved and additional staff accommodation, motive power depot, Guide Bridge

The Norwest Construction Co. Ltd., Litherland, Liverpool, 21: alterations to Bridges 25, 27, 31, 48, 65, and 66, Crewe to Stockport line

William Mitchell (Shopfitters) & Company, Belfast: alterations to town office, 24, Donegall Place, Belfast

Limmer & Trinidad Lake Asphalt Co. Ltd., London, S.W.1: resurfacing of concourse and platforms 1, 2, 3, and 4, Chapel Street Station, Southport

G. Duxbury & Sons, Leicester: for improved messing and washing facilities, central parcels depot, Leicester.

British Railways, North Eastern Region, have placed the following contracts:—

Prodorite Limited, Wednesbury: provision and laying of tiles, diesel repair shops, Darlington

Raines (H. & V.) Limited, Wakefield: heating installation, Neptune Street, Hull.

The Special Register Information Service, Export Services Branch, Board of Trade, has received a call from India for signal equipment as follows:—

7 home signals, single-armed with pole and ladder, complete height of pole 31 ft. for ground erection, complete with all parts as shown on the drg.

to I.R.S.S. Nos. 10/56 and to I.R.S. drg. No. Sa-2005 alt. nil

8 starter signals, single-armed, height of pole 23 ft., for surface erection, complete with all parts as shown on the drg. with poles and ladders to I.R.S.S. No. S-10-56 and to I.R.S. drg. No. SA-2000 alt. 2

8 outer signals, with warner, height of pole 35 ft. from ground base, complete with all parts as shown on the drg. with poles and ladders to I.R.S.S. No. S-10-56 and to I.R.S. drg. No. SA-2006 alt. 3.

The issuing authority is the Director-General of Supplies & Disposals. The tender No. is WP-2/18494-G/V(C). Bids should be sent to the Director-General of Supplies & Disposals, Shahjahan Road, New Delhi. The closing date is June 13, 1957. A set of tender documents, including specifications but not drawings, is available for loan to United Kingdom firms on application to the Branch (Lacon House, Theobalds Road, W.C.1). A photo-copy set can be purchased from the Branch for 17s. Cheques and postal orders should be made payable to the Principal Accountant, Board of Trade. Firms wishing to collect photo-copy sets of tender documents are advised to notify the Branch in advance of their requirements. The reference ESB/12648/57 should be quoted in any correspondence with the Branch. The attention of United Kingdom firms is drawn to a booklet issued by the Government of India entitled "Conditions of Contract Governing Department of Supply Contracts," a copy of which is available for inspection at the Branch.

The Director-General of the India Store Department, Government Buildings, Bromyard Avenue, Acton, London, W.3, invites tenders for the supply of window frame profiles for coaches, in light aluminium alloy. See Official Notices on page 672.

The Special Register Information Service, Export Services Branch, Board of Trade, reports that the closing date of the call for tenders for diesel locomotives for Portuguese India, reported on page 405 of our issue of April 5, 1957, has been postponed to June 29, 1957.

AWARDS FOR GALLANTRY IN CHAPEL-EN-LE-FRITH ACCIDENT.—Mr. David Blee, General Manager of the London Midland Region of British Railways, on May 27, at Euston, handed certificates and cheques to Mrs. Axon, widow of Driver John Axon, G.C., and to Fireman Ronald Scanlon, in appreciation of great gallantry at Chapel-en-le-Frith on February 10. As briefly recorded in our February 15 issue, Driver Axon stayed on a runaway freight train and was killed in a collision, while Fireman Scanlon, under the driver's orders, jumped from the footplate and applied the brakes to as many wagons as he could. Driver Axon was posthumously awarded the George Cross; Mr. Blee stated that "the pride of Mr. Axon's widow in this recognition by the Queen was shared by all the staff of the Motive Power organisation of the London Midland who, at all times respond to the call of duty, if need be to the extent of complete self-sacrifice."

## Notes and News

**Additional Telephone Number for B.I.C.C. Limited.**—British Insulated Callender's Cables Limited announce that their depot at Camden Street, Derby, now has an additional telephone number: Derby 44282.

**Two More Named Anglo-Scottish Expresses.**—The title "Royal Highlander" is to be restored to the 7.20 p.m. from Euston and 5.15 p.m. from Inverness beginning on June 17. Another new-named train, the "Waverley," is to be introduced between St. Pancras and Edinburgh Waverley on the same date leaving London at 9.15 a.m. and Edinburgh at 10.5 a.m. daily, via the former Midland and North British Railways route.

**Scale Station to be Opened.**—Scale Hall, the first entirely new station to be built by the London Midland Region since before the war, opens for business on June 8. Situated on the Lancaster-Morecambe-Heysham electric line, the station serves a new residential area. It has two platforms with a connecting overbridge. The buildings are constructed of pre-fabricated timber units with an external cladding of vertical hardwood; only the end walls are of brick.

**First Excursion by Inter-City Diesel Train.**—For the first time one of the Scottish Region inter-city diesel trains was used for an excursion from Glasgow to Edinburgh and North Berwick on the Queen's Birthday holiday on May 27. The train left Queen Street Station, Glasgow, at 9.50 a.m., arriving at Edinburgh Waverley at 10.47 and North Berwick at 11.25 a.m., and returned from North Berwick at 6.45 and Waverley 7.20 p.m., arriving at Glasgow Queen Street at 8.15 p.m. The six-car diesel train had accommodation for 360 second class passengers.

**G.K.N. Reinforcements Limited.**—On June 1, Twisteel Reinforcement Limited, a subsidiary of Guest, Keen & Nettlefolds Limited, changed its name to G.K.N. Reinforcements Limited. The reason for the change, and the choice of name was a recognition of the importance which the Guest, Keen & Nettlefold group of companies attached to the supply of steel for concrete reinforcement, and the fact that the title of Twisteel Reinforcement Limited no longer gave a fair description of the scope and activities of this particular company. All types of reinforcement can now be supplied to any part of the U.K. or for use overseas. The products now available include wireweld fabric, tensor fabric, prestressing wire, mild steel round bars, and tenor bars.

**Closure of Castor, Wansford, and Nassington Stations.**—The Eastern Region of British Railways announces that, on and from July 1, the passenger train service will be withdrawn from Castor, Wansford, and Nassington stations. Passengers for Castor will be catered for at Peterborough East station and by the omnibus services operating in the area. Parcels at present handed in at Castor station for despatch, or addressed there "to be called for" may be sent to Wansford station. A C. & D. service will be provided on Mondays and Wednesdays. Facilities for wagonload traffic will continue to be available at Castor but freight traffic in less than full wagon loads will be dealt with at Wansford. Passengers for Wansford will be catered for at Kingscliffe, Stamford Town, Peterborough East, and Oundle stations and by bus services. A

C. & D. parcels service will be available as hitherto, and facilities will continue to be available at Wansford station for parcels handed in for despatch or addressed "to be called for." Passengers for Nassington will be catered for at Kingscliffe, Oundle, Stamford Town, and Peterborough East stations and by bus services.

**Taltal Railway Co. Ltd. Tax Certificate.**—In a letter to shareholders, Mr. A. S. Matthews, Chairman, Taltal Railway Co. Ltd., explains that the necessary certificate that the company is free from any tax liability has still not been obtained from the Chilean authorities. The board, which believes an offer may be made for the company's shares which would give a more favourable price per share than liquidation would produce, asks the shareholders for continued forbearance.

**Railway Benevolent Institution.**—At a meeting on May 21 the board of the Railway Benevolent Institution granted annuities to three widows and five members, involving an additional liability of £157 per annum. Sixty-three gratuities were also granted amounting to £639 to meet cases of immediate necessity. Grants made from the Casualty Fund during the month of April amounted to £1,250.

**New Window Displays at British Transport Commercial Advertising Service Headquarters.**—"British Transport advertising at its finest" is the theme of the new set of window displays installed recently at the London Headquarters of the B.T.C. Commercial Advertising Service at Leicester Square Station. The displays depict the influence that advertisements on British Transport advertising sites have upon the many millions of passengers using road and rail services, as well as the vast public in the streets. Photographic enlargements show British Transport advertising sites inside and outside buses, on van sides and on British Railways and London Underground stations. A 3-D effect has been achieved by the inclusion

of coloured miniature reproductions of advertisements typical of those featured on the sites by national and regional advertisers. The displays were produced by the London Press Exchange Limited, and its associate, Publicity Arts Limited.

**B.T.C. Commercial Advertising Service.**—The British Transport Commission Commercial Advertising Service held receptions in Edinburgh on May 28 and in Glasgow the following evening. They were attended by many Scottish advertisers and advertising agents and officials of the two cities' business and professional clubs and organisations; a Member of the Scottish Area Board of the Commission was present on each occasion. The guests were received by Mr. George Dodson-Weils, Chief Commercial Advertising Officer; Mr. J. L. Perren, Commercial Advertising Officer, and Mr. Tom Steel, Advertising & Publicity Officer for Scotland.

**Luncheon to Mr. James B. Thom.**—A luncheon will be given at the Dorchester Hotel, London, on June 21, at 12.30 for 1 p.m., to Mr. James B. Thom, who is retiring from the post of European Manager, Canadian National Railways, which he has held for many years. The members of the committee are: Messrs. Keith Granville, B.O.A.C.; Keith Grand, British Railways, Western Region; Charles Holt, Thos. Cook & Son Limited; Ben Russell, Cunard Steamship Co. Ltd.; E. Spackman, Canadian Pacific Railway; Shirley James, Shirley James Travel Service; Tarleton Winchester, United States Lines; B. Wren, American Express Co. Inc.; Geoffrey Sutton, *Travel Topics*; Colonel R. A. F. Smith, Holland America Line. All applications for tickets should be made to Mr. Shirley H. James, 4, West Halkin Street, London, S.W.1. The cost of tickets, including the presentation, is 30s. each. Early application is essential.

**Beckett, Laycock & Watkinson Factory in Canada.**—Beckett, Laycock & Watkinson Limited announces recent acquisition of a



Window display at Leicester Square Station, London Transport featuring B.T.C. Commercial Advertising Service



factory at Montreal. Since 1951, a trading company under the title of Beclawat (Canada) Limited has been in existence, and has dealt almost exclusively with the supply of equipment to the Canadian Navy. This equipment has, in many instances, been manufactured in this country to the sub-assembly stage and final assembly has taken place at the works of the Canadian associate company. It is these works that Beckett, Laycock & Watkinson has now taken over and thus become a manufacturing as well as trading company in Canada. Mr. R. Antony Beckett, Managing Director of Beckett, Laycock & Watkinson Limited left on May 11 for a two month tour of Canada and the U.S.A. to confer with his Canadian associates on plans for the future development of business in that area.

**Lancashire Dynamo Group Change of Scottish Office Address.**—The Lancashire Dynamo Group sales office in Scotland moved to new premises on May 24. The new address is: 5, Woodside Place, Glasgow, C.3 (tel. Douglas 0867/9).

**Apprentice Training School at Horwich.**—Work began recently on the building of an Apprentice Training School at Horwich Works, London Midland Region, British Railways, at a cost of about £100,000. The site is adjacent to the main offices at the entrance to the works. The school will provide preliminary, practical, and theoretical instruction for about 80 apprentices each year, and will cover a very wide field. After 12 months the apprentice trainee will be transferred to the works and training continued until the age of 21.

**Railway Officers Visit Perkins Diesel School.**—The accompanying illustration shows motive power officers of British Railways examining a starter during a visit to the service school of F. Perkins Limited, Peterborough. The party was shown round by Mr. John Taverner, the chief instructor, and Mr. D. Hall, the company's field service supervisor. It included District Motive Power Superintendents Mr. C. G. Palmer (Peterborough); Mr. C. N. Morris (Kings Cross); Mr. W. D. Dixon (Lincoln); Mr. K. S. Kelsey (Doncaster); and Mr. E. Scutt (Utilisation

Assistant to the Motive Power Superintendent, Liverpool Street); and Mr. H. S. Crosthwaite (District Operating Superintendent, Cambridge). They inspected the instruction methods used in the school, which are of great current interest in view of British Railways' diesel programme. Emphasis is laid on practical work in the Perkins school, which last year trained nearly 4,000 students from all over the world.

**Modernisation of Carlisle Locomotive Depot.**—The new staff amenities and office building at Carlisle Upperby motive power depot is nearly complete, and the London Midland Region has started on the second phase of modernising the depot. This includes new permanent way, the new drainage and water supply systems. A new wheeldrop pit and outside preparation pits are to be installed, with new accommodation for the water treatment plant and its booster pumps. New entrances are to be formed in the roundhouse. The work is being carried out by John Laing & Son Ltd., of Carlisle. When this work is well forward, a start will be made on the third phase, including alterations to the machine shop and construction of a new locomotive stores building.

**Midland Railway of Western Australia Results.**—Gross receipts of the Midland Railway Co. of Western Australia, Ltd., for the year ended June 30, 1956, were £669,954, compared with £645,963 in the previous year. Working expenses were £619,341 (£557,100) leaving net receipts of £50,613 (£88,863). To this is added £6,368 (£5,515) for interest, dividends, and so on. Expenditure on renewals was £76,377 (£29,105) and provision for renewals and deferred maintenance £6,400 (£58,550). For depreciation of Road Service Department fixed assets £11,301 (£10,449) was allowed. Land taxes took £438 (£421), London expenses £6,598 (£5,933) and interest on the 4½ per cent first mortgage debenture stock £5,054 (£5,106). United Kingdom taxation, which took £23,043 the year before, was nil. The deficit for the year was thus £49,187 (£38,229) to which is added interest on second mortgage cumulative income debenture stock, which although not provided in the accounts and not presently payable because of the insufficiency of profits for the year, remains

payable out of future profits or otherwise. This amounts to £23,694, leaving a deficiency for the year of £72,881 (£61,923).

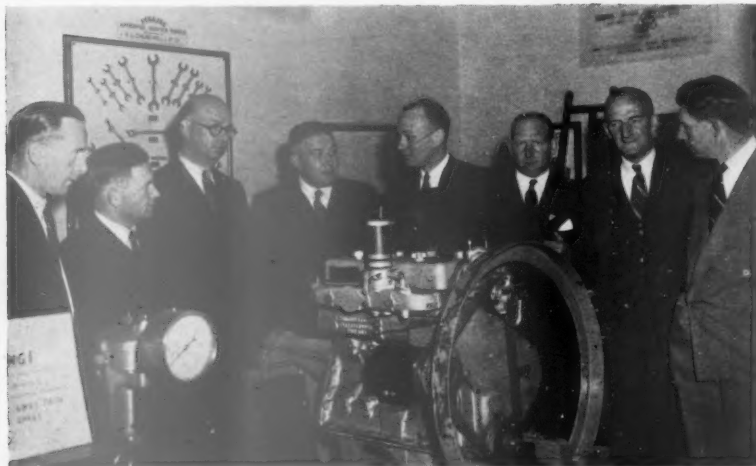
**English Steel Corporation Limited.**—The Group trading profit of the English Steel Corporation Limited for 1956 was £4,648,923 (£4,479,647). After allowing for taxation, the net profit was £2,528,808 (£2,319,375) and the dividend 10 per cent (same).

**British Timken Limited Results.**—The ordinary dividend of British Timken Limited, manufacturers of anti-friction bearings, for 1956 is raised to 10 per cent from 8 per cent for 1955, allowing for the 50 per cent scrip issue last May. Group net profits rose to £779,541 from £725,064, after deducting £755,825 (£689,679) for tax. Profits of the holding company were £709,685 (£700,774). General reserve is allocated £510,184 (£504,920), and the carry forward is £238,212 (£234,211).

**San Paulo Distribution to Shareholders.**—The San Paulo (Brazilian) Railway Co. Ltd., as a result of recent considerable progress in clarifying the tax position with the Inland Revenue authorities in this country, has a surplus in cash and gilt-edged investments over its actual and contingent liabilities sufficient to recommend a further distribution to shareholders of £150,000, equivalent to 1s. per 3s. ordinary share, by way of reduction of share premium account rather than by reduction of share capital. Subject to confirmation by the Court, it is hoped to effect the repayment not later than August 31. Net revenue for 1956 amounted to £12,077.

**Hoffmann Turnover Improves.**—The annual meeting of the Hoffmann Manufacturing Co. Ltd. was held in London on May 3. In his circulated statement, Mr. J. W. Garton, Chairman and Managing Director, reported that turnover in 1956 was slightly higher than in the previous year. There had also been some very good orders from abroad for special bearings. Net profit rose from £536,688 to £551,661 despite higher wages and increases in costs of materials which were borne in part by the company. A final ordinary dividend of 6d. per share (tax-free) was recommended, which, with the interim of 1½d. per share (tax-free) already paid, was an increase of ½d. per share on 1955. The report and accounts were adopted and the recommended dividend approved.

**Emu Bay Railway Co. Ltd.**—In his report to shareholders, Mr. W. Sydney Jones, Chairman of the Emu Bay Railway Co. Ltd., states that after making provision for replacement and upkeep of rolling stock, depreciation and taxation, the profit for 1956 was £23,387, which is approximately the same as the profit for the previous year. Interest for the year was paid on both the 4½ per cent and 5 per cent debenture stock, absorbing with exchange £23,378 and leaving £191 to be carried forward. Gross revenue was £509,827, an increase of £46,280, but this increase was more than offset by increased running expenses which were £58,075 more than last year. These increased expenses were the result of wage increases, additional cost of Wages Board Award Conditions, general cost increases, and increased maintenance. Further extensions of the retaining wall and railway tracks at Burnie were carried out, and construction and furnishing of the new administration block at



Inspecting the Perkins diesel service school at Peterborough; Mr. John Taverner is fourth from left and Mr. D. Hall on extreme right

Burnie was completed. The Australian Garratt-type locomotive is in traffic and is operating satisfactorily, as is also an additional railcar purchased from the Government Railways. Goods and minerals tonnage carried showed increases but passenger and timber traffic decreased.

**Construction Depot for Main-Line Electrification.**—A construction depot is to be centred at Crewe as part of the preparations being made by British Railways, London Midland Region, for the large-scale electrification of its main line. As a first step, the carriage shed at Wistaston Road is being demolished to make room for stacking and stabling areas for the construction trains and works trains. Work on the demolition, which began in May, is being carried out by Wm. Mulcaster & Co. (Contractors), Ltd., of Haslington.

**Guest Keen & Nettlefolds Limited.**—The final dividend of Guest Keen & Nettlefolds Limited, is raised by  $1\frac{1}{2}$  per cent to 10 per cent, making  $13\frac{1}{2}$  per cent against 12 per cent. The surplus on trading is up from £18,532,302 to £21,309,307, but this is after charging £4,656,836 (£3,492,429) for depreciation and transferring £1,086,044 (£729,970) to capital reserve. The net profit is £9,556,539 (£8,342,950) after tax of £11,085,379 (£9,931,217).

**British Geon Limited at the British Plastics Exhibition.**—The display to be presented by British Geon Limited at the British Plastics Exhibition at Olympia, London, from July 10 to 20, will be divided into sections dealing with the properties and uses of Geon P.V.C. in rigid P.V.C., cellular P.V.C., coal conveyor belting, P.V.C. coated fabrics and sheeting, cables, and floor covering. There will also be sections featuring the use of Hycar oil resistant synthetic rubbers in the engineering, textile, and other industries.

**A.C.V. Interim Dividend.**—The directors of Associated Commercial Vehicles, Limited, have declared an interim dividend for the year ending September 30, 1957, at the rate of 2s. per £1 unit of stock. Dividend warrants will be despatched to members on or about June 14, 1957. The turnover and profit for the six months to the end of March, 1957, are slightly better than last year, but because of the effects of the Suez crisis, the credit squeeze, and purchase tax, the order book position at the end of March is not as strong as at the same time last year.

**Costa Rica Railway Co. Ltd.**—At the annual general meeting or the Costa Rica Ry. Co. Ltd., held on May 8, Mr. Robert W. Adeane, Chairman of the company, reported that the year's gross revenue was £93,700 compared with £79,400 last year. The balance of net revenue for the year was £36,854 which, with a provision of £2,495 brought forward, made available £39,349 to cover  $6\frac{1}{2}$  per cent interest subsequently paid on the second debentures. In referring to locomotives he said that the first six diesels operated satisfactorily throughout the year, and four more units have recently gone into service. The balance of 10 new locomotives and four second-hand shunting locomotives should all be in operation by July 1, by which time the railway would be completely converted to diesel traction.

**South Wales Transport Co. Ltd. Meeting.**—At the annual meeting of the South Wales Transport Co. Ltd. on May 23, Mr. W. T. James, the Chairman, stated that

despite the many difficulties of the year, the company continued to make progress. Stage carriage service mileage increased by some 300,000 compared with the previous year to a total of more than 14½ million. Train-miles on the Swansea & Mumbles Railway, at 320,000, were slightly less than in 1955. More than 100 million passengers were carried on the two systems. The Mumbles Pier was re-opened to the public in June, after having been closed since the war. During the year the Swansea Corporation decided not to exercise its rights under the Swansea & District Act, 1936, to acquire the company's services in the Swansea Transport Area, including the Mumbles Railway, and the right has now lapsed.

**Travel Allowance Extended to Dollar Area.**—The ordinary travel allowance, now £100 a year, is to be made available for visits to the dollar area. Announcing this in the House of Commons on June 4, Mr. Peter Thorneycroft, Chancellor of the Exchequer, said that for the present travel year, from November to October, the whole £100 can be used in the dollar area from now to the end of October. It is stated that the fare to the final destination in Canada, the U.S.A., or elsewhere in the dollar area will not be reckoned against the travel allowance, as is the case with travel to the Continent of Europe.

**Improved Means of Carrying Coated Paper on Western Region.**—Following upon investigations in the interest of claims prevention, a method of carrying flat parcels of coated paper by palletisation has been devised by the Western Region and is in use at South Lambeth Goods Depot. High quality coated paper is packed in large flat parcels, and some difficulty has been experienced in handling these packages, for having no stiffening board, and only brown paper wrapping, they tend to bend when picked up and successive handlings cause the packing to deteriorate. Now the packages are loaded on to flat 40-in. by 48-in. pallets and bound into one unit by strip steel bands, with a protective top

board. The loaded pallet is then conveyed by pallet truck between the various methods of transport as a single unit. The illustration shows a bound unit being unloaded from a covered van by pallet truck.

**British Wagon Co. Ltd.**—At the annual meeting of the British Wagon Co. Ltd. on April 12, Mr. W. H. Copley, the Chairman, stated that net earnings of the group of £922,343 show an increase on 1955 of £131,000, and that the net profit for the year of £229,217, after providing for taxation, was a satisfactory result. A first interim dividend of 5 per cent was paid on August 1, 1956, and a second interim dividend of 15 per cent was paid on March 15, 1957, making a total of 20 per cent for the year. No further dividend was recommended. The report and accounts were adopted.

**Nitrate Railways Co. Ltd. First Distribution.**—The liquidators of the Nitrate Railways Co. Ltd. announce that settlement of the company's affairs in Chile has reached a stage which enables them to make a first distribution of £1 ls. a share to the holders of the £7 ordinary shares and 7 per cent preferred converted ordinary £7 shares out of the proceeds of the realisation of assets held in London and of remittances from Chile. A further distribution may be possible at a later date, but the amount can only be very small. The liquidators add that no distribution is possible to the holders of the £10 deferred converted ordinary shares which must be regarded as having no value as they rank behind the ordinary and preferred converted ordinary shares.

**Lancashire Dynamo Group Sales.**—Lancashire Dynamo Holdings Limited have announced the establishment of a company to be known as Lancashire Dynamo Group Sales Limited. This company, with headquarters at St. Stephen's House, Westminster, London, S.W.1, takes over the sales organisation in Great Britain, previously operated by the various companies in the Lancashire Dynamo Group. It will also co-ordinate



Unloading coated paper by pallet truck at South Lambeth, Western Region

the Group's export sales activities. The new arrangements do not involve any changes in the existing Lancashire Dynamo branch office organisation or in the selling agencies operating in connection with Statter products. Mr. Stanley F. Steward is Chairman of the new company and the other members of the board are Mr. F. H. Schroeder and Mr. H. G. Carter.

**The Derbyshire Carriage & Wagon Co. Ltd.**—At the annual general meeting of the Derbyshire Carriage & Wagon Co. Ltd. on May 2, Mr. W. Richards, the Chairman, presided. In his statement to shareholders he reported an increase in trading profit from £64,452 for 1955 to £74,320, and a higher turnover than previously. In connection with the modernisation plan of British Railways, new wagons built will be fitted with vacuum brakes, and fixed with self-contained buffers and Continental-type draw bars with screw-up couplings. Substantial orders for new all-steel mineral wagons, as well as wagons of special design, have been received.

**G. D. Peters & Co. Ltd.**—The annual general meeting of G. D. Peters & Co. Ltd. was held recently in London, Mr. A. Dowie, the Chairman, presided. In his circulated statement he reported a net profit of £164,891, after charging all expenses, but before taxation, compared with £66,273 for the previous year, and a final dividend of 5 per cent making 7½ per cent, compared with 6 per cent last year. An increase in turnover in excess of 40 per cent had been shown over the previous year's trading, this increase being well spread over the various activities of the Company, indicating a steady rise in demand for almost all the Company's products.

**English Steel Corporation Limited Assets.**—Group current assets of the English Steel Corporation Limited as at December 31 totalled £21,253,000, compared with £18,830,000 a year earlier. They comprised stocks, £11,609,000 (£9,250,000); debtors and loans, £7,592,000 (£6,620,000); amounts due by Vickers Limited and its subsidiary, £134,000 (£167,000); tax reserve certificates, £1,000,000 (nil); and cash £918,000 (£2,051,000). British Government treasury bills of £742,000 have been realised. Current liabilities were £8,697,000 (£6,298,000), creditors, and so on, amounting for £4,504,000 (£3,377,000). Group commitments for capital expenditure were estimated at £2,720,000 (£2,849,000).

**International Nickel Co. of Canada Ltd.**—At the annual meeting of the International Nickel Co. of Canada Ltd. in Toronto on April 24, Dr. John F. Thompson, the Chairman, stated that the total free world nickel-producing capacity will reach 650-675 million pounds in 1961, or 50 per cent more than in 1956. The company delivered, in all forms, 286 million pounds of nickel in 1956 and 271 million tons of copper. Dr. Thompson reported that the development of the Inco Manitoba project, which will be the world's second largest nickel mining operation, is proceeding on schedule and according to plan, with a working force to date of 500 men engaged on various phases of the undertaking. The right-of-way has been cleared and the roadbed started for a 30-mile Canadian National Railways spur from Sipiwek, on the C.N.R. Hudson Bay line, to Thompson. This spur line is planned to be in operation by the year-end. Construction of a 22-mile company-owned railway between Thompson and Moak Lake will begin during this year.

## Railway Stock Market

There has been a good deal of caution in stock markets, largely because an earlier rally in British Funds was followed by a reaction. Sentiment was inclined to reflect the view that a lower bank rate is unlikely until sterling is stronger and this in its turn will require a better showing by our gold and dollar reserves.

Movements in foreign railway stocks were generally small and unimportant, though Antofagasta continued active and has been well maintained at 37½, the yield of over 10 per cent attracting buyers particularly as there are hopes of the dividend exceeding last year's 4 per cent. Antofagasta 5½ per cent preference stock eased to 47 and also shows a yield of more than 10 per cent.

Cost Rica ordinary stock eased from 25 to 24½ and elsewhere, Mexican Central "A" bearer debentures lost a point at 68½, and Brazil Railway bonds remained at 7, while in other directions, San Paulo 3s. units kept steady at 4s. 1½d. and Taltal Railway shares changed hands at 11s. 10½d. United of Havana second income stock held steady at 8½. Guayaquil & Quito assented bonds have marked 83 and Chilean Northern first debentures 43½.

After an earlier rally, Canadian Pacific eased with Wall Street, and at \$69½ were little changed on balance. The preference stock was £57 and the 4 per cent debentures receded to £66. White Pass shares have been easier, too, at \$23½. Nyasaland Railways shares and 3½ per cent debentures have been maintained at 12s. 9d. and 60½ respectively. Midland of Western Australia second debentures marked 14½.

Among shares of locomotive builders and engineers activity in North British Locomotive, which took the price up to over 21s. at one time last week, was followed later by a reaction to 19s. 6d. and a recovery to 20s. 3d. which, however, compares with 12s. a few weeks ago. The activity in the shares has been accompanied by vague and unconfirmed talk of merger possibilities. Hurst Nelson eased from 37s. to 36s. at Glasgow, and Birmingham Wagon shares have been quite well maintained at 17s. 10½d. Beyer, Peacock remained active in their new form of 5s. units, and were maintained at 10s. 10½d. In other directions, Charles Roberts 5s. shares strengthened further from 12s. to 12s. 6d. and Gloucester Wagon 10s. shares were steady at 13s. 6d. as were Wagon Repairs 5s. shares at 14s. 3d.

B.S.A. shares have been firm at 32s. in the hope that the coming interim statement will show improvement in the half-yearly profits. Shares of the Butterley Company were 19s. 9d. and those of the Dowty Group moved up from 36s. 9d. to 37s. 3d., while Ruston & Hornsby were firm and held last week's higher price of 33s. F. Perkins 10s. shares, however, eased to 15s. 3d. T. W. Ward were again firm at 81s. 6d. Associated Electrical strengthened to 66s. 6d. and General Electric to 57s. and English Electric at 59s. 6d. were 1s. 6d. higher as compared with a week ago. Vickers again strengthened to 44s. 6d. after the annual speech of Lord Knollys which emphasised the group's expansion and indicated that in due course additional capital will be required. The City hopes this may indicate the prospect of a rights issue to shareholders. Guest Keen are making one which will raise £16,000,000 by offering three new shares at 46s. each for every 10 shares held. British Oxygen were 34s. 9d. and British Ropes 2s. 6d. shares 8s. Tube Investments kept at 66s. 6d.

and Renold Chain gained 9d. at 39s. 10½d. There was still a fair amount of speculative activity in Channel Tunnel 4s. shares, which moved up to 19s. 6d.

## Forthcoming Meetings

June 15 (Sat.) and June 20 (Thu.).—Permanent Way Institution, London Section. Visits to new tunnel works, Greenwood-Potters Bar, Eastern Region, British Railways.

## OFFICIAL NOTICES

**AGENTS**, all areas, required for new type Diesel injection test equipment.—Box 362, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

**REQUIRED** for the Southern Railway of Peru. **ASSISTANT TO THE GENERAL MANAGER.** Qualifications: A Senior Railway Official, preferably with traffic experience, with a good knowledge of Spanish. Must have administrative ability and be a possible candidate for promotion to a Manager's appointment. Salary offered: £1,800 per annum plus approximately 20 per cent. cost-of-living allowance.—Apply in writing: Peruvian Transport Purchasing Co. Ltd., Rex House, 38, King William Street, London, E.C.4.

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**REQUIRED** for the Southern Railway of Peru. **PRODUCTION ENGINEER (MECHANICAL DEPARTMENT).** Qualifications: Must have served a full general engineering apprenticeship, preferably in a railway workshop, and have some drawing office experience and a sound knowledge of modern workshop production and work progressing methods. Should also have a technical training up to at least the Ordinary National Certificate standard in mechanical engineering. Salary offered: £1,300 per annum plus approximately 20 per cent. cost-of-living allowance.—Apply in writing to: Peruvian Transport Purchasing Co. Ltd., Rex House, 38, King William Street, London, E.C.4.

**ASSISTANT ENGINEER** (Mechanical) required for their London Office by the Crown Agents for Oversea Governments and Administrations for appointment normally to pensionable establishment on probation for two years. Salary scale, £765 by £25 to £840 by £30 to £990 by £40 to £1,190 a year. The £765 minimum is linked to entry at age 25 and is subject to increase at rate of one increment for each year above that age up to 34. Fully qualified officers at least 27 years old may be eligible for special increase of £75 after two years' service. Prospect of promotion. Candidates should have passed qualifying examination A.M.I.Mech.E. or equivalent examination. They should have served apprenticeship or pupillage in the rolling stock department of British Railways or with carriage and wagon builders or a firm specialising in manufacture, wharf or railway breakdown cranes. They should also have subsequent drawing office experience in design of carriages and wagons, diesel railcars or cranes, together with a sound knowledge of modern workshop practice. Duties include preparation of contract specifications, examination and approval of drawings, design calculations, and technical correspondence.—Write to the Crown Agents, 4, Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M2A/40807/RA.

**THE** Director General of India Store Department, Government Buildings, Bromyard Avenue, Acton, London, W.3, invites tenders for the supply of: 13,495 Pieces, WINDOW FRAME PROFILE FOR COACHES in Light Aluminium Alloy. Forms of tender may be obtained from the above address on or after the 7th June, 1957, at a fee of 10s., which is not returnable. If payment is made by cheque, it should be made payable to "High Commissioner for India." Tenders are to be delivered by 2 p.m. on Thursday, 18th July, 1957. Please quote reference No. 24/57/DB/RLY/2.

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